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POST-WAR GUJARAT

AN ECONOMIC SURVEY AFTER WORLD WAR II

BY

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INVESTIGATOR, N. D. BOMBAY ECONOMIC &
INDUSTRIAL SURVEY COMMITTEE.

FOREWORD

BY

GAGANVIHARI L. MEHTA

PRESIDENT, INDIAN TARIFF BOARD

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1949

TAMIL NADU

IN THE YEAR 1949

First Published 1949

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To
Rao Bahadur Sheth Dharamdas
Hargovandas, J. P.



Managing Agent and a Permanent Director of The Mahalaxmi Mills Ltd., Bhavnagar and Director of The New Mahalaxmi Silk Mills Ltd., Bombay; The Master Silk Mills Ltd., Bhavnagar; The Bhavnagar Salt and Industrial Works Ltd., Bhavnagar; The Navsari Cotton and Silk Mills Ltd., Navsari; Sheth Hargovandas Jeevandas & Sons Ltd., Bhavnagar; Bio-Chemic Homoeopathic and Ayurvedic Pharmacy Ltd., Bombay; The Udwarda Wapi Electric Supply Co., Ltd., Bombay; The Gujarat Battery and Auto Electric Service Ltd., Ahmedabad; The Sentinel Assurance Co., Ltd., Bombay; The Jamnagar Jari Industries Ltd., Jamnagar; The Mahalaxmi Paints Ltd., Bhavnagar; The Mahalaxmi Clock and Watch Works Ltd., Bhavnagar; etc., etc.

SHORT SKETCH OF THE CAREER OF RAO BAHADUR SHETH DHARAMDAS HARGOVANDAS, J.P.

Rao Bahadur Sheth Dharamdas Hargovandas, J.P., a prominent industrialist and businessman of Bombay, was born in December 1911. After receiving his education at the Elphinstone High School, Bombay, he joined his father's business at the very early age of 18, and by his keen industrial sense and enterprising nature has greatly developed and expanded his father's numerous concerns.

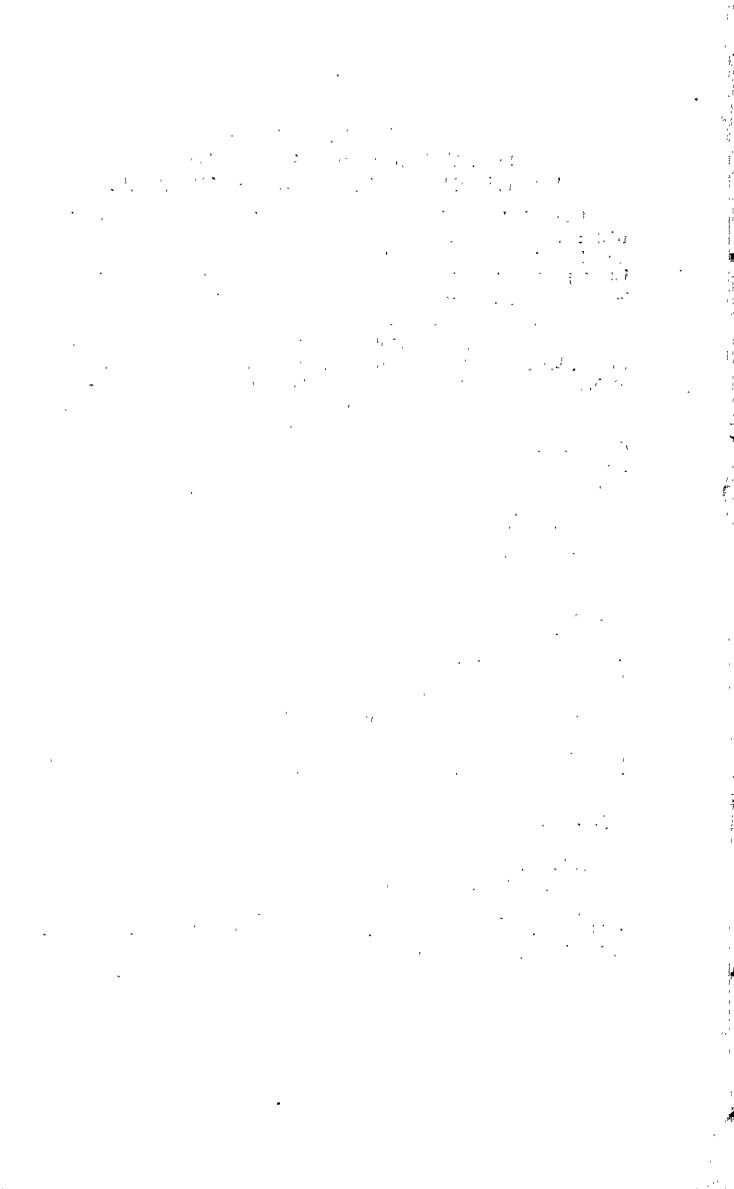
Having put the Mahaluxmi Mills, Bhavnagar, on a sound footing, his enterprising spirit turned to Bombay and he started the New Mahaluxmi Silk Mills Ltd., which within a short time has, due to the quality of its fabrics, succeeded in earning a name for itself. Just 36, gifted with an excellent physique and a vigorous mind, he cherishes the dream of establishing new industries and looks forward to progressive industrialisation as the supreme remedy for raising the standard of living of the masses of the country and thereby removing the curse of poverty from our land.

Besides his manufacturing and commercial interests, Sheth Dharamdas takes a very keen interest in social and public activities. A liberal philanthropist, he has several generous donations and charities to his credit and any good social cause always finds in him an unfailing champion coming forth with liberal contributions, both publicly and privately, to institutions seeking to relieve and allieviate the distress of the people. He recently donated a sum of Rs. 3 lakhs for a Hospital to be built at Nadiad. As the President of the Kapol community, he has been actively interested in promoting the moral and material welfare of his community and has sponsored several schemes, amongst which a housing scheme deserves special mention. Simple and unassuming in his manners, Sheth Dharamdas is a prince among philanthropists. Himself a great sportsman, he believes in the paramount importance of physical education in any scheme of national well-being. In recognition of his manifold services, he was made a J.P. in 1943 and was the recipient of the title of Rao Bahadur in 1946.

Sheth Dharamdas is also a trustee of 24 charitable and religious Trusts in all. He has not only been financially assisting all these Trusts, but he also takes a keen interest in their management.

I am highly indebted to Sheth Dharamdas for assisting me in publishing this work which I trust will be very useful especially to the industrialists, businessmen and administrators of Gujarat.

Author.



FOREWORD

Compilation and analysis of basic data is essential for planning, whether regional or national. Dr. Trivedi's book is useful in so far as he has tried to collect, survey and analyse data regarding the economic conditions of Gujarat in the post-war period. His book gives statistics about the natural resources of Gujarat as well as the agricultural and industrial development of Gujarat. He has tried to bring together scattered information about various industries, both large-scale and cottage, and has also compiled information regarding various aspects of agriculture. This monograph will, therefore, serve as a useful handbook to those who desire to plan for the economic development of Gujarat. The treatise is particularly welcome at the present time when considerable thought is being devoted to economic and industrial problems and when development on a regional basis is being contemplated in order to secure dispersal of economic activities. It would have been useful if the book had also covered some other aspects of economy, such as transport and financing of development schemes. I hope Dr. Trivedi will address himself to this task and deal in future with these aspects.

I trust the book will provoke thought and discussion on the various issues raised in it and will also be of use to those who frame policy and to administrators in obtaining necessary data.

*Indian Tariff Board
Bombay,
January 22, 1949.*

}

Gaganvihari L. Mehta

PREFACE

Hearty co-operation by social workers, businessmen and officials of Gujarat and Kathiawar in my efforts to collect data regarding the economic and industrial condition of these regions have been mainly responsible for always guiding and inspiring me to carry on further research into the economic condition of my home regions. My publications, especially *Kathiawar Economics* and *Wealth of Gujarat* have created around me a small circle of well-wishers who always inspire me to proceed with my work with patience and perseverance.

Besides, the Kathiawar Praja Mandal invited me last year to contribute articles on the economic conditions of Saurashtra; and thereafter various calls were made upon me from different quarters to contribute articles upon the economic conditions of Gujarat and Kathiawar. Very recently some of the ardent lovers of Gujarat also requested me to throw some light on the Post-War-Economic condition of Gujarat, and I acknowledge with thanks that a part of the present work has appeared in the *Textile International*, *Commerce*, *Free Press Journal*, *Janmabhoomi*, *Adesh* and various other periodicals—monthlies, weeklies, dailies, etc. I was invited to deliver radio talks on some of the decaying industries of Gujarat by the All-India Radio, Bombay Station, in the past; and last year I was invited to give a talk on the economic condition of the villages in Gujarat by the Baroda Station.

This demand for information on the economic conditions of Gujarat is but natural, for a revolutionary change in the political and economic life of Gujarat has taken place; viz. her emerging as one political and economic unit as a result of the wise statesmanship, untiring zeal, and firmness of purpose of her veteran leader and the arch-wielder of the country's unification—Sardar Shri Vallabhbhai Patel. He calls himself a peasant, and indeed has he added to the gifts of a king-maker the proverbial qualities of the peasant—commonsense, stubborn patience and mute purposefulness; for he has gone about the consolidation of the Prince's "holdings" in Gujarat, as in the whole of India, verily like a peasant, though a modern, enlightened one; and thanks to this achievement, which I believe has its rivals only in the major events of world history, the bewildering, ruinous diversity of jurisdic-

tions that obtained when these investigations were first undertaken and which has necessarily coloured the writing of this work, has ceased to exist and Gujarat can now follow the right economic policy as a single unit.

This being the first attempt to study the economic condition of post-war Gujarat, the nature and scope of methods adopted for investigation require some clarification. For collecting data on the topics to be investigated I issued three questionnaires: (i) for Social Workers, (ii) for Artisans, and (iii) for Traders. The first was sent to social workers, leading officials, and businessmen. For the second and the third, I undertook a tour of Gujarat with a view to obtain first-hand information and collecting the relevant books, reports, and other documents not available in Bombay. In addition, some 800 forms of questionnaires were personally filled by me, after interrogating artisans, manufacturers and traders at the different Centres of Gujarat.

The literature on the economic and industrial problems and possibilities of Gujarat is not easily available and the existence of 200 different political jurisdictions upto as late as June 10, 1948 further complicated matters. Some of the States did not even maintain up-to-date statistics covering all fields of economic life. This deficiency has partly been met as a result of personal inquiries with responsible officers of the States and also with local producers and traders.

The Gazetteers, the Census reports and other Government publications contain a great deal of valuable information and I have tried to utilize the same to the fullest extent. As Investigator to the Bombay Economic and Industrial Survey Committee I had the opportunity to investigate into the conditions of the Small and Cottage industries in British Gujarat.

The effect of the war on the industries of Gujarat has been the special object of my study. Besides, all throughout my study I have been convinced of the necessity of cutting a mean between total industrialisation and a total turn-about towards handicrafts in all possible fields. I am therefore able to suggest ways and means to have both the large-scale mills and factories as well as the small-scale cottage and handicraft industries—neither impeding the progress of the other but both rather supplementing and complementing each other. It now rests with the Government and outside experts how far and how

much of my suggestions are to be adopted. I would only like to point out that I have made them after deep deliberation and patient sifting of statistics involving a long and arduous labour and I am happy to present this treatise especially at this opportune time to the people of Gujarat and of India as a whole.

The scheme of chapters hardly needs to be explained in detail. Chapter I gives the Economic Background. Chapters II and III discuss the problems of agriculture and industries allied to agriculture. Chapters IV to IX deal with the problems of various industries. In Chapter X an attempt is made to view synthetically the Problems of Economic Development in Gujarat with reference mainly to (a) Population and Food Supply, (b) Industrialization, and (c) Income and Standard of Life of the People.

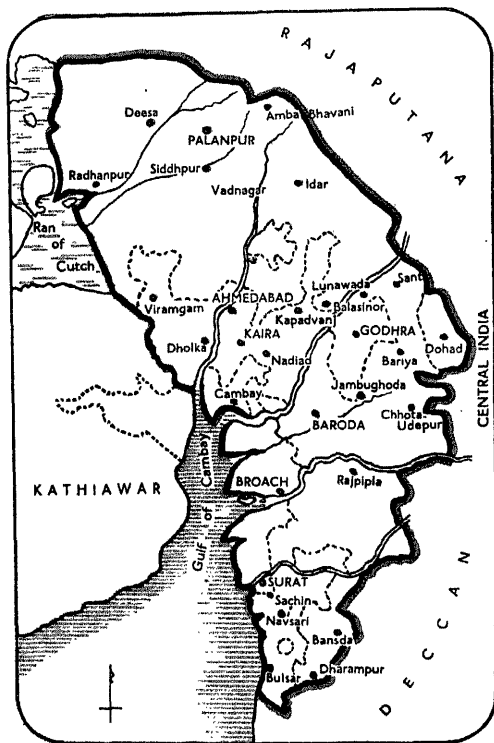
There have been a number of economic surveys pertaining to the Gujarat region during the last fifteen years. They throw a valuable light on the various problems relating to the areas surveyed. No one has, however, so far attempted to build up a comprehensive picture of the economic condition of Gujarat including British Gujarat and Gujarat States. From this point of view it may be submitted that this is a pioneer attempt.

There are several lacunae in the available factual material, but it is hoped that the presentation of whatever is available in a compact form will create more interest in the subject and lead to the adoption of measures to make good these deficiencies.

Finally I acknowledge my indebtedness especially to Shri Virchand Panachand Shah, ex-President Bombay Provincial Congress Committee; Shri Ishwarlal Dinanath Mehta, who directs many industrial undertakings in Bombay, such as, Minerva Dyes & Chemical Company, Bombay Printing Ink Manufacturing Company, Samasta Nagar Co-operative Bank Ltd. etc.; Shri Harjivandas Jivraj Mehta, Manager, New Mahaluxmi Silk Mills Ltd. Bombay; Shri Harilal Jivraj Mehta, Partner, Pravin Colour Company, Vadgadi, Bombay; and Shri Dolarray B. Oza, Manager, B. B. & C. I. Railway Co-operative Life Office, Bombay. But for their help, encouragement and active interest in my work, this book would not have been published so soon.

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REGIONAL BACKGROUND OF GUJARAT

CHAPTER I

ECONOMIC BACKGROUND

A. THE REGION

(i) Geographic Background

Gujarat proper lies on the West Coast of India between 20.3 to 24.5 North latitudes 71.3 to 74.4 East longitudes. The Province has an area of 33,798 square miles, with a length from north to south of about 280 miles and a breadth from east to west varying from 50 to 150 miles. On the west of the Province is the Arabian Sea and the Nal Kantha, on the north-west the Gulf of Cutch, on the north the deserts of Thal Parkar and Mevad and on the north-east Abu and other outliers of the Aravali range. The east is guarded and limited by rough forest land of the Vindhya, open towards the central natural highway from Baroda to Rutlam and again rising and roughening southwards into the northern offshoots of the Satpudas. The southern limit of Gujarat is demarcated by the River Daman-Ganga.

Topography : Even though located on the main land, Gujarat's easy access to the east of India is cut off by the presence of Thal Parkar desert for some length in the north and by the hills and the mountains covered with forests on the rest of her boundary lines. The relief of the land therefore shows gradual slope from east to west. Hence all the big rivers of Gujarat flow from east to west and meet the Gulf of Cambay; and the topography of Gujarat has often led people to use for it the simile of the 'sloping roof'.

Mountains : Most of the border line of Gujarat is covered with hills which are the ending portions of the mountains lying outside the territories of Gujarat. In the north of Gujarat, the Abu Hills rise at places 5600 feet above the sea level. A little further to the north of the Province is the Arasur mountain about 100 miles in length. It is a vast stretch of hills going right up to the eastern territory of Gujarat. In the east is the Pavagadh mountain about 2500 feet above the sea level and 26 miles in circumference. Then

there are the Rajpipla Hills better known as the Satpuda Hills famous for their agate quarries. Lastly on the eastern side we find the Panera mountain within the Surat District.

In the extreme south of Gujarat are the hills of the Sahyadri mountains covering about 100 miles of its territories. These hills add a great deal to the forest wealth of Gujarat.

Rivers : The plains of Gujarat are watered by big rivers like the Banas, the Saraswati, the Sabarmati, the Mahi, the Narbada, the Tapi, and small rivers like the Vishwamitri, the Dhadhar, the Kim, the Purna, the Auranga, the Daman Ganga and a number of small strimulets carrying the monsoon waters to the Gulf of Cambay. Among these rivers, the Narbada is navigable upto 65 miles from its mouth and the Tapi upto only 20 to 30 miles from its mouth. All the small rivers and streams of Gujarat become torrents during the monsoon and get completely dried up in summer.

Tanks : Near almost every big village of Gujarat there is a small tank and its mud water quenches the thirst of the village cattle. But it goes dry in summer. Within only the Baroda State territories there are 7500 such small tanks and though some of them meet the public demand for water, hardly few of them meet the needs of agriculture.* Some small canals constructed by the Gujarat States mostly meet the demand for public water supply. The Scot Canal (9 miles) in the Radhanpur State, the Bilia Canal near Orumana and the Hathamati Canal in the Idar State can be cited as illustrations in this connection.

Climatic Conditions : This is a small Province near the

* The following are the statistics in this connection:

Mahal	No. of tanks	Mahal	No. of tanks
Patan	817	Baroda Prant (Sub-	
Sidhpur	383	divided into Petlad,	
Kalol	394	Padra, Baroda, Dabhoi,	
Kadi	968	Sankneda, Savli, Karjan,	
Chansma	358	Sinor and Vaghadia	
Mehsana	171	Mahals and Bhadran and	
Kheralu	274	Tilakwada Peta Mahals)	2,965
Visnagar	165	Navsari Prant (Sub-	
Harij (Peta Mahal)	157	divided into Navsari,	
Antar Suba (Peta Mahal)	66	Vyara, Kamrej, Songadh,	
		Mangrol, Mahuwa, Gandevis,	
		and Palasna Mahals	692
		Grand Total :	7,410

(Contd. on opposite page)

equator,* and the Tropic of Cancer passes through its northern border. As such Gujarat is bound to have an intensely hot or cold climate. But the Arabian Sea and the Gulf of Cambay washing its western coast reduce the temperature and render the climate more pleasant and healthy. The presence of the forest-covered rugged mountains and hills on the eastern boundary also help to reduce the intensity of climate.

Thus on the western coast of Gujarat climate is moist, on the eastern border it is comparatively cold and on the northern border, on account of the presence of the deserts of Thar Parkar and Mevad, it is dry. Dryness causes the climate on this side to be one of extremes. It is very hot in summer and very cold in winter. In the Central Gujarat the climate is less moist and hence comparatively severe in intensity.

Rainfall: Gujarat receives rainfall mainly from the South-West Monsoon. From the Southern Sahyadri mountains the monsoon passes through the Narbada Valley and causes a rainfall of 60" at Chhota Nagpur. But that part of the Arabian monsoon which passes over Rajputana goes straight to the Himalayas without shedding a single drop of rain on the plain of Gujarat. The reasons are not far to seek. The central plain of Gujarat is very hot and level and there is no mountain to intercept this monsoon. However, the Aravali Hills which form the northern end of this plain, do attract the clouds and receive about 60" rain. On account of the presence of the Sahyadri hills and the Dang forests South Gujarat receives more rain than any other part of Gujarat. The rainfall here varies from 60" to 100". While on account of the attraction of the Satpuda mountains the Narbada Valley receives rain from 40" to 50". But as we reach the northern border of the Province the rainfall declines. It is about 35" to 40" around the valleys of the Sabarmati and the Mahi and 0" to 20" around the Banas.†

Natural Regions: In the light of certain common features like soil, vegetation and climate, Gujarat can conveniently be divided into three natural regions.

(Table prepared from the Baroda State Geography published by the Baroda State Education Department in 1940.)

* It is only 20.3 north of Equator.

† For verification vide Table No. 1 in the Appendix

North or Upper Gujarat,: that is the region from the Northern Hills of Aravali to the right bank of the river Sabarmati. Rainfall varies in this region from 0" to 35" and in its extreme north desert conditions prevail. Climate is therefore one of extremes and it is drv. It is very hot in summer and very cold in winter. Generally one crop, that is monsoon crop, is available in this part and that too mainly consists of food crops.

Middle or Central Gujarat,: that is the region between the left bank of the Sabarmati and the right bank of the Tapi. The rainfall in this region varies from 35" to 50". The Coast-line and the Satpuda mountains which attract the clouds render climate moist. Because of adequate rainfall and moist climate in addition to food crops, Commercial Crops like tobacco and cotton are also grown in this region.

South or Lower Gujarat, that is the region that extends from the left bank of the Tapi right upto the extreme south reaching the Dang forests. The rainfall in this region is the heaviest in Gujarat. It varies from 60" to 100". The Coast-line and the Dang forests on the border line render climate more pleasant. Climate in this region is moderate. Because of the heavy rainfall green foliage, fruits and vegetable as well as sugar-cane and rice cultivation takes place in this region.

(ii) Economic Resources

A. Forests : The total forest area of Gujarat is more than 1,500,000 acres*. Most fortunate zones in this connection are those of the South and East Gujarat. North Gujarat claims very little in this connection because of the nearness of the deserts of Thal Parkar and Mevad which render its climate intense and dry. This region therefore suffers from scarcity of water due to scanty rainfall.

In Gujarat over and above the Dangs and the Panch Mahals, Bansda, Rajpipla, Jambughoda, Chhota Udepur, Devgad Bariya and Sant State possess rich forest resources.

Major Forest Produce : of this province is bamboo, teak, timber, yellow wood, red wood, black wood, sandle wood, 'kher', 'simal', 'dhavda', 'tanachh', 'beeyo', 'dudhiyo' etc., etc.

* Statement No. 1 in the Appendix gives the details about the forest areas within the various Gujarat States and also the different districts of British Gujarat together with the amount of forest revenue obtained by them.

Its minor forest produce is grass, honey, wax, colouring barks, medicinal herbs, etc. Gujarat has areas of 'poor' as well as 'good' forest resources. In the acreage of 'poor' forest resources at times wasteland is included in which mostly inferior quality, widely scattered, timber trees grow. In this connection, the Gujarat States have not maintained any uniform policy of mentioning separately the 'good' as well as the 'poor' forest areas within their territories. However from the data collected* it is quite clear that 'good' forests comprise more than 50 per cent of the total forest areas in this Province.

Afforestation, it is well known, increases the humidity in the climate and by increasing the rainfall it tempers the vagaries of Nature. It will therefore improve the plant life and by making available more fodder supply it will improve the cattle breed. The forests absorb excess heat as well as water and lessen the severity both of draught and flood. They are also a source of revenue to the State. No energy should therefore be spared to increase and develop the existing forest resources of Gujarat.

Besides, according to the 1931 Census returns 36,575 persons were engaged in the industries connected with wood in Gujarat. This number can be easily multiplied if the industries such as dairying, bee-keeping, lac refining, toy making-match making and pharmaceutical are established or encouraged at suitable centres.

B. Minerals : No attempt has so far been made to have a comprehensive geological survey of this region. For the mineral ores of Gujarat we have therefore to depend upon the old superficial record available in the volumes of the Gazetteers of the Bombay Presidency. We therefore welcome the recommendation of the Bombay Economic and Industrial Survey Committee that the Provincial Government should take up this matter. In the light of this recommendation if the Bombay Government and the Baroda State join hands and work out a scheme for the comprehensive survey of Gujarat there is every likelihood that they will be able to bring

* Statement No. 1 in the Appendix gives the details about the forest areas within the various Gujarat States and also the different districts of British Gujarat together with the amount of forest revenue obtained by them.

to light many mineral ores capable of industrial exploitation. Recently the results achieved in this direction by some of the Gujarat States like (i) Idar, (ii) Rajpipla, (iii) Jambughoda and (iv) Baroda are encouraging. They have definitely proved that the old record, in the Government Gazetteers, is out of date.

Stone Quarries are worked out in different parts of Gujarat. Most of them supply metal for roads, and rough stone for building construction. The Administration Reports of the various States like Baroda, Rajpipla, Lunawada, Bansda make mention of the existence of a variety of stones which supply metal for roads and rough stone for buildings.

Of the road metal there is no dearth within this Province as the river beds of Gujarat supply sand in large quantities.

Superior quality stone for building construction is found within the Ilol State. But because of the absence of cheap transport, it has not so far been possible to exploit it commercially. It is sure to find an easy outlet in the Ahmedabad markets. Thus in the absence of railway lines the Ilol stone mines are not worked to their full capacity, while stones are exported in huge quantities to Ahmedabad from comparatively distant stone quarries of Himatnagar.

At Ahmednagar, Savgad and Parbada in the Idar State, a very superior calciferous sand stone is quarried and it is widely used all over Gujarat for ornamental public buildings.*

Breccia occurs in the different parts of Gujarat. But the possibility of its commercial exploitation needs further investigation. Fine breccia crags are found half a mile to the south of Sandia in the Baroda State. "A very beautiful decorative material could be obtained by cutting and polishing the handsome breccia forming some fine crags" near "Sandia". "There are two varieties (i) white angular fragments in a red matrix and (ii) red inclusion in a white matrix'. This extremely hard and dense silicious breccia would make beautiful slabs and pillars". †

Basalt Rocks: occur widely and in a good quantity all over the trappean area. For rough work requiring strength they are well suited and durable. "Hundreds of exposures of the rock

*"It was chiefly from the Idar quarries that the mosques and the temples of Ahmedabad were built" vide Bird's Mirat-i-Ahmadi p. 106

† R. Bruce Foote: The Geology of Baroda State (1938)

exist" within the Baroda State territories "on which quarry work might be advantageously opened."*

Granite: of good quality is found within many of the Gujarat States like Palanpur, Chhota Udepur, Baroda and Idar. But it is not quarried as yet. The metamorphic rocks near Chhota Udepur yield four kinds of granite, red, white, grey and nearly black. The Analysis Report of Granite found within the Idar State is given in the Appendix. On the lines of this report possibilities of working these mines within the Palanpur, Baroda, Chhota Udepur and other States should also be explored.

Quartz Sand suitable for the manufacture of glass occurs in several parts of the Baroda State in the following forms:—

- (i) In the beds of white and friable iocene sandstone, with small admixture of oxide, iron and clay in Vijapur Mahal;
- (ii) in beds of friable compact and white fine to medium grained sandstone of Baghbeds in Songir and Lachharas; (iii) in a loose form as river sand in the beds of the Sabarmati and the Orsang rivers.

Pure sand for the manufacture of glass is available from the various quartzite hills in Sankheda Mahal and the Vidwaswami Mata Hill on the east of Sankheda. There is a very big vein of milky white quartz of fairly pure character running northwards from the right bank of the Unch river apparently extending into the Vidwaswami Mata ridge. It is of sufficiently pure quality to be valuable for manufacturing glass and crockery.

Quartzitic Sandstones well suited for building purposes as well as for mill stones, grindstones etc. are found in all the out-skirts of the Bagh beds in the Rajpipla State. However the most conveniently accessible occurrences are those near Gora and Sakhava. There is an old quarry at the latter place.†

Marble Stones of good quality are found within the Rajpipla State near (I) Gora, (II) Zulta Amba, (III) Vanji, (IV) Mokhadi, (V) Sulpan and (VI) Dum Khal.

The deposits near Gora and Mokhadi are favourably situated in regard to river transport and those near Gora in

* Bruce, op. cit. (1938)

† P. N. Bose : "Notes on the Geology and Mineral Resources of the Rajpipla State".

regard to cart-carriage as well, there being a good cart road from Rajpipla to Gora.

Within the Palanpur State (near Amirgadh) the hills or Diwania are also rich in marble stones but intensive survey is necessary in order to find out their commercial possibilities. Similarly seven miles north-east of Chhota Udepur good specimens of white, yellow and grey marbles have been found.

Miliolite Stones : Numerous quarries of miliolites have been found near Adivi, Dholassa, Harmania etc. within the Baroda State. In colour texture and structure the specimens from Adivi and Harmania are very similar to those from Porbandar. The varieties available from Dholassa and Mojav are found to be somewhat inferior as they are coarser and show more open texture, containing less the carbonate of calcium and more the insoluble material.

Mountain limestone is also found in some places within the Palanpur State, but it does not seem fit for working on any large scale. But the limestone of the nummulitic rocks in the south of Chhota Udepur is considered well suited for building construction and its commercial potentialities require to be explored.

As regards limestone ('Kankar') in small nodules, it is found near most of the Kaira rivers like the Mahi, the Vatrak, the Meshwo and in the various small watercourses.

Lime is thus available in sufficient quantities in the different parts of Gujarat. Hence the various State Administration Reports make mention of this fact. Lime kilns are therefore found near many towns and villages of Gujarat and the lime prepared in these lime kilns is mostly used for house-building. The Balasinor State, however, claims to be rich in good quality lime and it is exported from this State to outside places.

Crude Soda ('us') or impure Carbonate of Soda used in soap making and bangles making is found near Viramgam, Prantij, Kapadvanj, Lasundra and many other places in Gujarat. It is also found on the banks of rivers Mahi, Sabarmati and Tapi. It is mainly used in manufacturing washing soap at Ahmedabad, Prantij and Himatnagar. At Kapadvanj it is used in making "Bangadio Kach" from which crude glass bangles ('dudhia bangadi') are made.

It is also necessary to utilise this crude soda* for the manufacture of Silicate of Soda (washing soda) which is at present imported in considerable quantity in this province. In order to make proper scientific use of this natural resource, factories of convenient sizes can easily be constructed at suitable centres in this region.

Salt, lime and soda are available in sufficient quantities in Gujarat. There is therefore considerable scope for the establishment of alkali works within this Province.

Pottery Clay of inferior quality suitable for bricks and tiles is available in the different parts of this region. But superior quality clay used for manufacturing Mangalorian tiles and better quality clay toys has also been traced in the Baroda and the Rajpipla State territories. The brick and tile factory of Billimora is making industrial use of the superior quality pottery clay found near Billimora. There is another deposit of similar clay near Khari Khadi and Vengan Khadi parts of the river to the east of Gandevi where it is found as bedded deposit. It is mottled and streaky gray, pale lilac-red and yellow. The quantity of the clay is sufficient for any large and new concern intending to utilise it and the clay is worth exploring for the manufacture of Mangalore tiles. Clays well suited for high class pottery also occur in the tertiary beds at numerous places in the Jhagadia and Valia Talukas of the Rajpipla State. But those occurring west of Damlaif in the Rajpipla State appear to be of the best quality.

Ochres: Red, yellow and white clays of superior quality

* In connection with this crude soda it should be pointed out that the variety available near Radhanpur is known as "Soro Khar". When this "Soro Khar" is refined once it is known as "Ekvario Khar" which is used by the goldsmiths for cleaning their instruments. When it is refined twice, it is known as "Bijivario Khar" and it is used for manufacturing gunpower. When it is refined thrice, it is known as "Trijivario Khar" and it is used for making powder manganese for fireworks. When it is refined four times, it is known as "Chothivario Khar" and it is used for making nitric acid and better quality fireworks. It will not be out of place here to recall that it is the availability of this 'Soro Khar' that made Sami once the important fireworks producing centre of Gujarat.

† The Analysis reports of the Rajpipla Clays given in the Appendix also confirm our view.

capable of industrial exploitation are available in good quantities at Ilol, at Ghalha near the junction of the Rhenkhadi with the Tapi in the Baroda State and in the vicinity of Ratanpur, Bhimpore, Padvania Vasna, etc., in the Rajpipla State. These deposits have been worked in the Ilol and Rajpipla States for many years past. But mining is carried on in an unsystematic manner. There is, therefore, an urgent necessity of adopting improved methods for the development and exploitation of these potential natural resources. At Ilol 20 years' monopoly to dig the clay is given to Mr. R. P. Patel in the year 1929-30. For this Mr. Patel pays Rs. 30/- by way of annual license fee and annas 10 per ton as royalty. No further interest is evinced by the State to make him adopt the improved mechanism for exploitation.

Of the Rajpipla State ochres "about 3200 maunds are annually taken out of the State, on pack-bullocks by Mohamedan traders (Vanajars). The royalty paid by them is two annas per maund." To the west of Damlai in the Rajpipla State white clays occurrence is of sufficient importance to justify further exploration. It is of excellent quality and a small sum of money judiciously spent will open up a considerable area. The purchase of boring outfit will be very helpful, for it will speedily and economically test the extent and quality of clays. These clays are of superior quality but no local industrial use is made of these deposits. They are not only fit for manufacturing high class pottery, but they are also fit for the preparation of (i) light coloured distempers, or (ii) colour for washing the walls. At present they are exported to foreign countries where they are used for manufacturing colours. It is necessary to point out here that minor instances of ochreous clays also occur in the midst of the Aravali Schists within the Lunawada State territories.

Bauxites: In the Baroda State territories there is a small quarry for "white clay" on the south-east base of the low hillock known as "Mataki Tekri" about a furlong to the south-east of the village Nahani Naroili. The analysis of this clay as well as the bauxite occurring near Kuranga has given encouraging results. Different grades of bauxite can be utilized for different purposes such as for manufacturing aluminium sulphate, alum, alumina, firebricks or aluminium.

Similarly bauxite occurs in the Rajpipla State near the village Vasna. But the sample from Vasna showed a low percentage (37.51 per cent) of alumina. But in the opinion of Mr. Bose, the geologist who carried out the survey of the State areas, further investigation is likely to reveal the presence of bauxite with a higher percentage. Further investigation in this direction is therefore necessary.

China Clay is available near Eklara in the Idar State, Kalol in the Panch Mahals, and Virpur in the Baroda State. It is used in the manufacture of porcelain, superior quality crockery, floor and wall tiles, firebricks and other refractory wares such as glass pots and crucibles.

However, so far this clay has not been put to any industrial use. In the works erected at Eklara and Arsodia* within the Idar State it is simply refined and then exported to outside places. From Kalol in the Panch Mahals it is exported without even being refined. Since the quality and quantity of this clay deposits near Virpur in Baroda State seem to have commercial possibilities, further investigation is necessary in this direction.

Talc (French Chalk) is available in considerable quantity within the territories of the Idar State. Its Analysis Report† shows that it is of good quality and it is quite suitable for textile and general industrial purposes. It is, however, exported to outside places from Idar without being put to any local industrial use. It is also found in the vicinity of some of the Jambughoda hills. But as yet, no proper survey is made to definitely suggest the possibilities of its economic exploitation.

Stealite and Asbestos are found in considerable areas within the Idar State,‡ and there are all the possibilities of manufacturing slates, pens, toys, etc. from stealite stone, while asbestos can be used for manufacturing fire-proof materials. Asbestos is most useful for its fire-proof property and therefore it is in great demand in this industrial era.

* The Analysis Reports of the China Clay deposits found near Eklara and Arsodia in the Idar State are given in the Appendix.

† The Analysis Report of Talc (French Chalk) of Narainpur (Idar State) is given in the Appendix.

‡ The Analysis Report of the Asbestos found within the Idar State is given in the Appendix.

Extensive mounds of clays are also encountered at various places within the Rajpipla State. Especially among them Limodra, Bhimpore, Amaljhar and Padvania sites, being close to the railway line, have attracted special attention of Mr. Bose, the geologist who surveyed the Rajpipla State areas for investigating the minerals. There are calcareous beds suitable for the manufacture of Cement. If actual trial confirms this, enormous quantities of slags are available within the State to be utilised for the manufacture of an artificial stone known as "Patent Stone" now made and largely used in Bengal. An idea of the quantity of slags available may be formed from the fact that at Limodra they cover an area of 6 acres and average 5 feet in thickness.

Mention must also be made of the Mica available in the Jambughoda hills; and on the river about 20 miles west of Chhota Udepur. It is available in large quantities in the Jambughoda hills from where every year its considerable quantity is washed away by drainage during the monsoon. However, neither any proper survey is made to gauge the extent of this mineral nor any attempt is made to analyse it to know the quality. Jambughoda being a small State has so far hesitated to launch any scheme of geological survey hence various other ores found within the State also remain unanalysed.

Precious Stones : Agates and Carnelians: Agate stones and moss pebbles are found within the Baroda State territories and in the beds of the Majam river about fifteen miles from Kapadvanj. But they are found widely scattered there and no survey is made for the purpose of their commercial exploitation. However, Rajpipla is famous for these precious stones, since the days of Ptolemy (A.D. 150)

Mining is still carried on in this State in the same unsystematic and wasteful manner as it was done when the carnelian beds were first opened up centuries ago. According to the demand, one or more pits are sunk during the cold weather and as much gravel as possible is extracted from them by driving galleries for short distances in various directions. The roofs partially fall inside the pits during the monsoon. When no work is carried, the old pits become unworkable in the next working season and fresh ones are dug at a safe distance from them. A large quantity of valuable material has thus been left unworked. An enormous amount of wealth is thus wasted in the

past. In order to avoid such wastage, it is necessary for the State to see that (i) proper roofing arrangement is made and (ii) modern implements and (iii) expert mining hands are employed in working out these mines. Carelessness in this direction is criminal, as it leaves the posterity poorer in these sources, which once exhausted can never be replaced.

If mining is conducted by modern methods, (i) all this waste will be prevented and (ii) it will be possible to carry on operations to much greater depths where carnelian and agate pebbles of larger size and better quality than those extracted at present are found. The higher value which such stones are expected to fetch will more than repay the large initial outlay of modern mining.

It should also be noted that out of these agate stones of Ratanpur mines, Cambay artisans make buttons, knives, scissors, 'madalias', 'beads', rings, ear-rings, nose-rings, chains for watches, headwear ('Chak'), etc. For this purpose these precious stones are exported to Cambay and other outside places. In order to make local use of these stones, it is desirable to induce some expert artisans of Cambay to come and settle within the Rajpipla State and establish Rajpipla's reputation in the craftsmanship of agate stone carving.

Metallic Ores: Gujarat seems to be very poorly equipped with the metallic ores. Except iron and manganese no ore worth commercial exploitation is traced within this region. However, the paucity of data, due to the lack of comprehensive geological survey, acts as a handicap in giving any definite opinion in this connection.

Iron Ore is available in the different parts of the Baroda State, in the Bulsar and Pardi Sub-divisions of the Surat district, near Limodra, Bhimpore, Amaljar, and Padvonja within the Rajpipla State, near Godhra and Shivrajpur in the Panch Mahals and near Jambughoda. It is interesting to note here that there were iron furnaces in the past at almost all the above places. But owing to the imports and competition of the cheap foreign iron and steel goods in Gujarat, this industry has been completely destroyed notwithstanding the fact that the indigenous smelters turned out iron of excellent quality.*

The ores worked in the Baroda State were of three kinds: haematitic, limonitic and magnetic in the order of their impor-

* Foote, op. cit. 1938.

tance. The haematite and limonite ores (of the eocene lateritic rocks) were worked in the valley of Sabarmati, and its traces are seen near Pudhera and Vijapur in the shape of small accumulations of iron slag. The iron industry of Antarsumba in the Mehsana District depended upon the lateritic haematite occurring in the British District of Kaira. The former existence of this industry in the northern part of Sankheda Mahal and in the Sabarmati Valley and at Samdhi can be traced from the heaps of iron slag which are met here and there.

Iron seems to have been worked on a large scale along the west limits of the Panch Mahals. The ground near Jambughoda about twenty miles east of Chhota Udepur is widely covered with slag and scoria which point to the existence of very extensive iron works in this area. Extensive mounds of slags are also encountered at various places like Limodra, Bhimpore, Amaljar and Padvania in the Rajpipla State. An idea of the quantity of slags available may be formed from the fact that at Limodra they cover an area of about 6 acres and average 5 feet in the thickness.

An average sample from Dungri was analysed by Dr. C. Schulten with the following results:-

Oxide of Iron....	73.17	Water	....	4.90
Alumina	....	Loss	....	0.79
Silica	....		
Lime	....		
	10.68			
	1.20			
				100.00

The analysis proves the ore to be of good quality and from the extensive area covered by the laterite a very large quantity of iron ore is expected. But until workable coking coal is found in or near Gujarat, the question of regeneration of this extinct industry cannot be seriously discussed. Hence the iron ore of Baroda, Jambughoda and Rajpipla States as well as those of the Surat District and Panch Mahals are marking time.

Manganese Ore has been traced within the Palanpur, Idar and Jambughoda States and in the British District of Panch Mahals. However only near Shivrajpur in the Panch Mahals manganese mines are worked at present by Messrs. Killick Nixon & Company. The manganese ore obtainable from the Jotvad hills of the Jambughoda State has not been analysed as yet. The State hesitates to carry out the comprehensive geological survey of its territories partly due to its inadequate

(i) financial resources and (ii) means of transport and partly from fear that the results might not repay the cost of the investigations.

Though the Analysis Report of the manganese ore found within the Idar State gives 52.48% Manganese,* first of all it must be ascertained whether (i) the area, (ii) the prospects and (iii) the percentage contents will allow the development of any industry. Failing in this, if the ore is available in sufficient quantity it may be exported outside.

Mention must also be made of the *Lead Ore* found in the Ghanpari and Dandiyapura hills of Jambughoda State and at Khandelav lake two or three miles from Godhra. Copper ore is traced in the mountains of the Palanpur State and within the Baroda State territories while the Mount Jarora side (in the Palanpur State) gives evidence of the existence of sulphur.

Conclusion : The above mineral finds prove that of the road metal, lime (for bricks and tiles), and crude soda there is no dearth in this region. Proper local use is also made of the above mineral finds within the province. But very superior quality ochres (red, yellow and white), China Clay, talc, steallite and asbestos are exported as raw materials to the outside regions. Therefore it is necessary to investigate the possibilities of their industrial use with this province. It is gratifying to note that the Baroda State has recently begun to evince keen interest in its quartz sand resources for the development of glass industry. But no notice is taken of the mica available in the Jambughoda hills which is washed away every year in considerable quantity by drainage during the monsoon. As regards the precious stones agates and carnelians within the Rajpipala State, they should be scientifically mined to prevent wastage and steps should also be taken to locate the agate stone carving industry within the Rajpipala territories.

Because of the existence of the large quantity of impure carbonate of soda (or crude soda) at various places, manufacturing of sillicate of soda (washing soda) and establishment of alkali works have a good scope in Gujarat. Gujarat is, however, very poorly equipped in metallic ores. Except

* For further verification vide the Analysis Report of the Manganese Ore in the Idar State in the Appendix

iron and manganese, ores worth commercial exploitation are not ascertained as yet. A comprehensive geological survey is likely to give us some more clues about lead ore of Jambughoda and Godhra, copper ore of Palanpur and Baroda, tin and sulphur traced in the vicinity of Mount Jarora in the Palanpur State, or gold, silver and lead particles found near Fatehghadh and in the sand of the river Banas in the Radhanpur State.

C. Agriculture : Soil : The soil of Gujarat is mostly alluvial. It can be subdivided into 'Kali' and 'Goradu'. Kali is the black cotton soil largely in the South Gujarat, in the British Districts of Broach and Surat and the Navasari division of the Baroda State. It is also found in the Palanpur, Cambay, Bansda,* Dharampur† and Sachin States and also in the various parts of the Ahmedabad District and in the Mahi Kantha Agency especially in the Kaira District. 'Goradu' soils are characterised by great depth varying from the drift sands of Ahmedabad, to the rich loam of Kaira. They contain to a varying degree organic matter and we find them in highly developed state in the Charotar and Chaurasi divisions of Gujarat. Goradu soils are also found in the Palanpur, Lunawada, Balasinor and various Gujarat States and also in the Broach, Surat and Panch Mahals districts of British Gujarat.

There is a third variety known as 'besar', which means mixed soil holding an intermediate position between the above two, found practically all over Gujarat. In the Ahmedabad district there is another variety of soil known as 'bhatha' formed by the mud deposits of the river Sabarmati; while the 'bhatha' soil of the similar characteristics but varying in quality is also found in the Kaira and Broach districts. The north-east of Gujarat especially the tract nearer to the 'Ran' of Cutch is known as 'Kharo pat' or the saltish land. Thus the saltish soil is available within the territories of the Radhanpur and the adjoining small States like Bhabar, Tervada, etc. and also within the Cambay State in the south-west of the Matar Taluka.‡ However the marshy lands known as 'Khar' and 'Khanjan' in the extreme south of the Pardi Taluka§ and those all along the Gujarat

* Light black.

† Poor in quality.

‡ In Kaira district.

§ Surat district.

coast resemble in character more the soil of the Konkan rather than the soil of Gujarat. Mention may also be made of the patches of very damp ('bhejvali') land on the banks of the river Shedhi (in the Rewa Kantha Agency) which yields cold weather crops of wheat and pulse.

The above are the chief varieties of soils available in Gujarat. All the above varieties are found mixed up with each other all throughout Gujarat and they are at times found to have been adversely affected by the mixing of the sand particles nearer the hilly or stony regions. Sandy soil, 'khokhar' soil, 'kankriwali', 'dadriwali', 'retal' are the names given to such varieties and they are available all over Gujarat. Such admixture of sand affects the fertility of the soil. Viewed from the point of fertility the most fertile areas of Gujarat are those of Kaira* and Surat districts.

Main Crops : About 13 million acres of land are under crop cultivation in Gujarat. Main crops of Gujarat are: (i) food crops, (ii) commercial crops, and (iii) fodder. The area under the cultivation of each group† is given below:—

- | | |
|----------------------------------------------------------------|-----------------|
| (i) Food Crops including pulses and Maize | 6,260,000 Acres |
| (ii) Commercial crops including cotton, oil-seeds and tobacco. | 4,260,000 Acres |
| (iii) Fodder | 2,250,000 Acres |

Minor Crops : Under minor crops are sown ragi, barley, condiments and spices, sugar-cane, fruits and vegetables including root crops. These groups cover about 1½ million acres.‡

D. Live Stock : The total cattle wealth of Gujarat is about 6½ millions.§ The total strength of the important species is as under:—

Bulls and Bullocks	1,500,000	Calves	
Cows	1,000,000	(young stock)	1,000,000
Buffaloes	1,000,000	Donkeys, horses, ponies,	
Sheep and goats	1,250,000	camels and mules	750,000

* Especially Charotar.

† Table No. 2 in the Appendix gives details about each crop together with area under its cultivation in the various States and districts of British Gujarat.

‡ Table No. 2 in the Appendix gives the details about each crop together with the total acreage under its cultivation in the various Gujarat States and British Gujarat.

§ Table No. 3 in the Appendix gives the details about the live stock resources of Gujarat.

The density of cattle per 100 acres of sown area is 67 in India* while as compared to this it is only 50 in Gujarat. As regards the density of cattle Gujarat thus fares badly when compared to all-India figures. It should also be remembered that as regards numerical strength sheep and goats exceed the number of cows and buffaloes in this region. If their breed is improved, it will result in the yield of better quality wool and skins.

E. Fisheries: According to the 1931 census returns 8030 workers were engaged in fishing and pearling in Gujarat. But pearling is an insignificant industry in this region; therefore all these workers may be presumed to be doing fishing.

Of these 8030 workers, 3477 were females who carried fish to the local market and sold them. The important areas where this industry is carried on and the number of workers engaged in fishing in these areas are given below:-

	Persons engaged in fishing
Surat District	1,465
Navsari Division	773
Broach District	489

The main fishing centres are Cambay, Sarod, Kavi, Tankara, Jambusar, Kolak, Sajod, Hansot, Olpad, Bhagwa, Maroli, Jalapore, Navsari, Bulsar, Matwad and Dandi. With a coastline of about 200 miles and the numerous creeks made available by the mouths of so many rivers and streams meeting the Gulf of Cambay, the fishing industry has a good scope for development in Gujarat. But as it is considered to be a low occupation and the majority of the Gujaratis are vegetarians, its development has been neglected; and so far this industry remains in the hands of the illiterate 'Machhis' and 'Kharvas'. Fish is the easiest and cheapest source of proteins and valuable mineral substances. The exploitation of these resources would materially raise the standard of the people's diet which at present is highly deficient in necessary proteinous food stuffs. Moreover, as this industry is in the hands of the illiterate, poor and unorganised section of the people, fishing is carried on in a haphazard manner by them. It being so, almost two-thirds of every catch is immature and undersized fish of sizes far below what any country with organised fishing regulations will permit to be caught or offered

* Sir M. B. Nanavati and J. J. Anjaria: *The Indian Rural Problem* (1944), pp. 18-19.

for sale. The waste entailed is enormous. Instead of sizeable fish being on sale in the markets, giving good remuneration to the fishermen and satisfaction to the consuming public, constant complaint is heard about the poor quality fish offered in the market.

In this connection the matters can be improved by prescribing a minimum size of mesh in all nets sufficiently large to permit the escape of the majority of immature fishes, especially mullets.* Fishing if properly developed on the coast of Gujarat might lead to the establishment of industries like curing of fish skins, manufacturing of fish fertilisers and fish oil and the preparation of good quality fish-meal. Such auxiliary industries and trade are bound to confer upon the people of this province benefits of increased employment and wealth.

(iii) Transport Facilities

A. Water Ways: The Gujarat coast is very little indented and it is low, sandy and flat. The sea around it is shallow, hence it claims no good harbours where big ships can safely anchor.

In the bygone days Gujarat was gifted with 250 miles of coast line. The river Saraswati with her seven tributaries†, the river Mahi and the river Sabarmati afforded good outlets to country craft and small boats. But the recurrent geological upheavals mitigated the importance of her sea-board. About 60 to 70 miles of coast in the north-west went dry, the river Indus changed her course, the river Saraswati dried up† and the Mahi and the Sabarmati are no longer navigable for any considerable distance from their mouths.

The process of silting up has rendered the mouths of many rivers non-navigable and only 160 miles of coast-line now afford a sea outlet. Many creeks in which small boats and country craft could easily ply in the past have lost their utility for shipping, but they do maintain their utility as fishing and salt manufacturing centres.

Minor Ports : Since the days of Ptolemy (A. D. 150) ports of Cambay, Broach and Surat have played important historical role in developing the commerce and trade of Gujarat. But they were found useless for the modern big ocean-liners

* James Hornell : Report on the Marine Fisheries of the Baroda State 1930

† Vide Sjt. Ratnamanirao Bhimrao's article on the 'Lost River (Khovaeli Nadi) from Prasthan's Samvat 1980 Kartik issue p. 18.

to anchor. The process of silting has also greatly affected their utility as trading centres. Thus Cambay's sea-borne trade has declined from Rs. 7 crores* to less than Rs. 1/5† crore and Surat's from Rs. 2¼ crores* to less than Rs. ½† crore.

Transport by water is generally cheaper than transport by land. It helps the agriculturists a great deal by making it possible for them to sell goods in long distance markets and also to get their necessities at cheaper rates. The Bombay Minor Ports Committee have therefore made several suggestions for the development and improvement of these ports. In their opinion the existing conditions of the Cambay, Broach, Surat and Bulsar ports are almost identical.‡

Cambay suffers from the silting of the mouth of the river Mahi. The Mahi often piles up mud hills near her mouth which changes the course of the water. Hence the size of the vessels visiting Cambay is hardly 300 tons and they are required to be of a shallow draft because in case of necessity they are required to sit on the mud. The ships visiting Cambay have also to take care of one dangerous spot known as Bore Rock between Magarvali and Cambay.

Broach is on the bank of the river Narbada 30 miles in the interior from the mouth of the river. There are several large shoals and sand banks particularly at Sammi and Kukerwada which render the river unnavigable except at high spring tides. Hence the port is open for about 15 days in a month and it is closed to traffic during the monsoon when there are floods in the river. Vessels of 100 tons come up to Broach at high tides and those up to 80 tons can easily ply up to Broach at ordinary spring tides. The mouth of the river near Lohara is silting up. Since the construction of the new bridge, the current of water running down to the Gulf has changed the course towards Broach and is causing erosion on the northern bank. The depth of water at the anchorage in front of the Customs House has therefore increased.

In order to increase the utility of this port as a trading centre there is at present an urgent need for the construction of a

* Figures for the year 1806.

† Figures for the year 1936-37. For further details refer Tables No. (i), (ii), (iii), (iv) and (v) in the Appendix.

‡ Bombay Minor Ports Committee Report, 1939.

covered godown for storage of goods brought for shipment or removal into the town. At present goods are landed and shipped as quickly as possible in order to enable the vessels to sail before the spring tide. Usually enough conveyances are not available to remove the goods to the town or to bring the goods from the town for shipment. The goods are therefore left on the vacant ground by the side of the Bandar Road. As this area is covered with water at high tide, the goods are damaged at times. Hence an open high level shed covered at the top with a gradual slope must be provided near Becharaji Ovara. The existing road from the Bandar passing through the town to the Railway Station should be widened and improved in order to help the transport and to develop the trade of Broach.

Surat is only seven miles from the mouth of the river Tapi. There are sand banks at some places in the Tapi between Dumas-Hajira and the Hope Bridge. Vessels of 50 tons burden come upto Surat at the daily high tides. The river is sufficiently wide and deep near the anchorage opposite the Castle. In Surat creek the shoals near (i) Umra, (ii) Magdalla, (iii) Gaviar, (iv) Dumas, (v) Hajira and (vi) Mora are either extensive or rocky hence they should be marked with wooden stakes.

It is also necessary to construct groynes at suitable points near Surat Port to prevent erosion on the Surat side of the river. Though erosion does not lead to siltation in the river nor does it affect the jetties, it is feared that it might in future divert the course of water to the other bank and cause siltation near the jetty. This precautionary measure will therefore prove as a safeguard against such an eventuality. It is also necessary to construct a new jetty near the Port. During the busy season about 10 to 12 vessels can load or unload at a time at this Port. But the jetty that is recently constructed can hardly accommodate 6 vessels at a time, while other wooden jetties are in a dilapidated condition and therefore useless. It is therefore necessary to provide accommodation for 6 more vessels. In view of the (i) strong current of water in the river and (ii) danger from floods, a floating jetty that can be removed in the rains will better suit the purpose. The bank of the river is precipitous. The labourers are therefore experiencing great hardship in loading timber. There is therefore a need for a separate wooden shipway for shipment of

timber. A ship with a correct gradient to ensure timber sliding down at all states of the tide will remove this inconvenience. As Chapat Bandar Road is maintained out of the Ports Fund and is repaired every year, another useful suggestion in this connection is of removing the mud (accumulated on the road during the rainy season) soon after the monsoon is over. This will lessen much of the inconvenience caused to the traffic when such repairs are delayed and attended to late in winter. Finally, the Conservator of the Port should see that all the uprooted trees hidden in the creek-bed are removed and marked.

Bulsar is only about 3 miles from the sea. There are small sand banks at only two places between the mouth of the river and the town. Vessels of 50 tons can enter the river at high tide on any day, but those of larger tonnage can come in at spring tides only. Erosion is noticeable on the southern bank near Hanuman Bhagda and to prevent further erosion, out of the Port Fund seven groynes have been constructed between the Customs House and Hanuman Bhagda.

In order to assure safety of the incoming and outgoing ships the sand banks between Kosamba and Bulsar should be marked with wooden stakes. Marking of shoals or rocks by means of stakes requires small cost and hence it deserves the immediate attention of the authorities concerned. The wharf at Bulsar cannot be used at low tide for shipment or for loading of goods, and carts have to pass through mud to reach the vessel's side in the stream. Therefore it is necessary to construct a jetty at Bulsar. It is also desirable to metal or asphalt the 'Kachha' slip and to see that the mud accumulated on its surface during the rainy season is cleared up every year as soon as the monsoon is over. There is also a great pit in the road going through the creek which requires to be filled in. This will afford a great deal of convenience to the traffic at a very small cost. Finally, owing to the change in the course of water at the mouth of the river, the light at Kosamba does not serve as a guide to masters of vessels. Therefore after consulting the nautical adviser, this light should be removed to a more suitable site towards Bhagal side.

As Gujarat is favoured with many small creeks on its coast, there are many road-steads like Sarod, Kavi, Tankara, Jambusar,

Sajod, Hansot, Bhagwa, Maroli, Navsari, Matwad and Dandi. The utility of these road-steads as distributing centres of trade, and hence the role that they can play in the economic regeneration of the hinterland of Gujarat, demands a special study.

B. Roads : There are in Gujarat at the most 10,000 miles roads of which hardly 3,000 miles are motorable in fair weather.* For a region covering an area of about 34,000 square miles, this is very inadequate. The interior Gujarat needs more roads. The Bombay Economic and Industrial Survey Committee in their inquiry found about 40 to 75 per cent of the total area of the districts of the Bombay Province not served by roads, and large parts of the districts totally cut off from communication with the urban areas during the monsoon months. They found 83.3 per cent of villages of Surat District totally cut off from outside communications during the monsoon. If this is the condition prevailing in British Gujarat—economically and industrially the highly developed zone of Gujarat—the conditions prevailing in the various Gujarat States can just be imagined. It is because of this lack of means of communications that the Panch Mahals, in spite of vast forest and mineral resources, still remain a backward area. If the pace of industrialisation is to be perceptibly quickened, adequate measures should be adopted to increase and improve the transport facilities in the interior parts of Gujarat. Even from the point of view of securing better return for the cultivator's produce, increased transport facilities are absolutely necessary.

The effects of transport facilities are chiefly noticeable in connection with the trade in milk and vegetables. The growing of vegetables in Gujarat is confined to villages mostly within a narrow radius of eight to ten miles from the city. It is not a paying proposition to the cultivators to grow vegetables because there is no market for them if they are more than 20 miles away from a big town. An instance in point is the Chorasi Taluka of the Surat District where vegetables and garden produce are grown extensively as most of the villages of this taluka are within a radius of 10 miles from Surat. On the other hand, in many villages of the Bardoli Taluka cultivators make

* Table No. 4 in the Appendix gives the details about the (i) total road mileage and (ii) road mileage motorable in fair weather for the various Gujarat States as well as the British Districts.

ghee out of milk, for there is no local market for milk.

Even today cart transport plays an important role in the rural economy of Gajarat. The interior areas of the Province are linked by roads mainly used by peddlars, pack-bullocks, pack camels (Vanzars) and carts. There are in Gujarat 4 lakhs of riding and load carrying carts*, out of which about $1\frac{1}{2}$ lakhs are riding and $2\frac{1}{2}$ lakhs the load carrying ones. Most of the interior States have neither motorable roads, nor railway lines and their economic growth is greatly hampered by the absence of any swifter and cheaper means of communications.

C. Railways · Railways are of comparatively recent origin in Gujarat. The Bombay Baroda and Central India Railways were constructed first during the later half of the 19th century and they were followed by the construction of the Gaekwad's Baroda State Railways.† Other States are however marking time, only a few of them claiming a small mileage to their credit.

Gujarat's total railway mileage is 1720‡. Viewed from the angle of vision of ownership their mileage stands as under —

	Miles
Belonging to the Government of India	764.12
” ” ” Baroda State	705.44
” ” ” Remaining States	78.23
” ” ” Public Companies	173.08

1720.87

Gujarat claims comparatively more mileage to its credit when compared with India or the different parts of India. Per 100 square miles India's railway mileage is 21, Bombay Presidency's 26, Kathiawar's 43, while Gujarat's is 58. But of this 1720 miles railways, 1469 miles of railways are within British Gujarat and Baroda State territories and the rest of Gujarat is hardly served by 200 miles§ railway lines. Thus more than 90 per cent of Gujarat's railway mileage happens to

* For details *vide* Table No. 5 together with the Note in the Appendix.

† For the history of the Railways construction in Gujarat, *vide* the Gazetteer of the Bombay Presidency and Baroda volumes and also the Administration Reports of the Gujarat States.

‡ For details *vide* Table No. 6 in the Appendix.

§ Table No. 6 in the Appendix gives the details about the railway mileage within the Gujarat States as well as British Gujarat together with their gauges.

be within British Gujarat and Baroda areas. Hence the rest of Gujarat badly needs this quicker means of transport. Not only are these railways owned by eight different agencies but within the territories of the same State we find railway lines of different gauges. Thus out of the total 1720 miles of railways 1/3rd is covered by the broad gauge, 1/3rd by the meter gauge and 1/3rd by the narrow gauge*.

This sort of construction under different management and with different gauges, increases overhead expenditure, terminal charges, etc. To serve the interests of the trade and industry of this Province, their unified management is more welcome. It will remove the hardships resulting from the variation in rates, terminal charges etc. Besides it will also solve the problems of gauge and railway routes for future construction. It is essential to devote great care to the layout of railway routes. For when in most of the Gujarat States' areas there is dearth of railways and when 40 to 75 per cent of the total area of British Gujarat itself is lacking in road and railway transport, it is surprising to note that within the remaining areas of British Gujarat road-rail competition goes on unabated.† Out of the total 619 miles of motorable roads‡ in British Gujarat, about 370 miles run parallel to railway lines. This state of affairs cannot be tolerated and steps should be taken to evolve a policy to assure a co-ordinated transport system for this region.

B. THE HUMAN FACTORS

A region's natural wealth depends for its development upon the human element it has at its disposal. The economic resources whether agricultural, mineral, marine, or forest, require to be handled by some motive power which is ultimately regulated by man. Thus man and his organising capacity are vital determining factors for a region's economic and industrial progress.

* Broad Gauge	5 ft. 6 inches	604 miles
Meter Gauge	3 ft. 3 3/8 inches	555 miles
Narrow Gauge	2 ft. 6 inches	561 miles

Total. 1720 miles

† Table No. 7 in the Appendix gives the details about the existing rail-road competition from station to station in British Gujarat.

‡ Motorable in fair weather.

§ Gujarat, like Kathiawar, is composed of heterogeneous units under
(Continued on next page)

Population: The total population of Gujarat was 77,11,450* in 1931. Population figures of the previous six censuses, together with the increase or decrease over the previous decade's figures are shown in the following statement :

Year	Population	Increase or decrease in population during the ten years' period.
1881	69,00,016	
1891	76,95,715	+11.5 p. c. Increase in popula-
1901	61,05,895	-20.6 p. c.† tion between 1881 and
1911	65,12,622	+ 6.6 p. c. 1931 is 11.7 per cent.
1921	68,73,718	+ 5.5 p. c.
1931	77,11,459	+ 12.1 p. c.

These figures taken as a whole compare unfavourably with those of Kathiawar for the corresponding years. While the total population of Kathiawar increased by 31.8 per cent between 1881 and 1931‡, the population of Gujarat increased only by 11.7

* For details *Vide* Table No. 9 in the Appendix

† This heavy decline in 1901 can be attributed to heavy starvation and death toll taken by the famine of Samvat 1956 ('*Chhapanio Dukal*') that occurred in the year 1901.

‡ Refer *Kathiawar Economics* by the present writer, p. 50.

(Contd. from page 25)

different Governments. Its area is 33798 square miles and it is divide into four major units as under:-

a. Gujarat States included in Western India States Agency	6,394	Square miles
b. Baroda State territory in Gujarat	6,812	" "
c. British Gujarat	10,193	" "
d. Bombay States and Agencies in Gujarat	10,399	" "

As regards British Gujarat we are handicapped to some extent in our calculations regarding the Ahmedabad District. The Talukas of Dhandhuka and Gogha Peta of this District are situated in Kathiawar for which separate statistical information is not available. In our study we have therefore taken into account the population of the Ahmedabad District as a whole. When the total area of Gujarat is taken into consideration, this leads to a mistake of commission to the extent of 4 per cent. This is a very minor raction and as such it can be easily overlooked. More so, because similar characteristics prevail in these tracts of Kathiawar, and in arriving at various percentages the population of this area is also averaged. It being so, our calculations are not at all materially affected by this slight mistake of commission on our part. Table No. 8 in the Appendix gives the area, density & number of town and villages in these four major units.

p.c. To a certain extent this can be accounted for by the rise of Kathiawar Ports, and hence the exodus of people from the Banas Kantha Agency and the adjoining territories to the Kathiawar Ports".*

Density : The density of population in Gujarat was 228 persons per square mile.† This may be compared with Kathiawar having 142 and Bombay Presidency (including Sind) having 173 persons per square mile. But the density varied as between the different parts of the region Ahmedabad having 240, Baroda 299, Surat 420 and Kaira 458. The density of population was only 165 per square mile in the area grouped under the Bombay States and Agencies, while it was as low as 84 in the Western India States Agency, viz. Banas Kantha Agency including Palanpur and Radhanpur States.

Thus there is an uneven distribution of population in Gujarat and except British Gujarat and the Baroda State, the rest of the area is very thinly populated.

According to the Swedish Statistician Sundborg, in western countries the number of persons aged from 15 to 50 years is generally about half the population. Variations in the age composition mostly take place in the other two age groups viz. 0-15 and 50 and over. This formula is restated by Whipple, who classifies the age composition into five fundamental types, viz. Progressive, Stationary, Regressive, Secessive and Accessive.

Gujarat's Population	Age† period	Progres- sive	Station- ary	Regres- sive	Seces- sive	Acces- sive
40.44	0-15	40	33	20	40	25
50.09	15-50	50	50	50	40	60
9.47	50 & over	10	17	30	20	15

Judged from this angle Gujarat's population can be said to be progressive. The number of persons in the lowest age groups 0-5 and 5-10 is definitely greater in Gujarat and the number of persons in the highest age groups 40-60 and 60 and over is definitely smaller when compared to the figures of the Western Countries.

* For further information *Vide* Chapter on Human Element from *Kathiawar Economics* by the present writer.

† For details *Vide* Table No. 8 in the Appendix.

‡ Table No. 10 in the Appendix shows the distribution of the population, Males and Females, into the various age groups.

This is due to the much greater infantile and child mortality in Gujarat and the shorter average life of its people.

The figures about the distribution of population per mille into the various age groups reveal that in the age groups from 20-40 the ratios compared with the Bombay Presidency are unfavourable to Gujarat*.

Age groups	Gujarat	Bombay Presidency (including Sind)
20-30	171	183
30-40	135	146

It is probable that to a certain extent this lower ratio is due to emigration. But to what extent? It is very difficult to estimate this. Besides as vital statistics are not maintained for Gujarat, it is impossible to ascertain the extent to which mortality rates account for the fall in the number of persons, in this their prime of life, within this province.

Sex : Out of the total 77,11,450 persons in Gujarat, there were 39,96,104 males and 37,15,346 females.† There was therefore an excess of 2,80,758 males. The ratio of females to males worked out at 930 females per 1000 males. In the Bombay Presidency the corresponding female ratio was 909. Compared to the Bombay Presidency figures, Gujarat, Kathiawar, Baroda and Mysore show higher female ratio.‡ Male emigration to a certain extent accounts for this particular phenomenon.

If further analysed the ratio of females to males worked out at 937 per 1000 in the rural areas and at 899 in the urban areas. This tendency is quite in contrast with that prevailing in Kathiawar, where in the rural areas the female ratio worked out at 958 and in the urban areas at 988. This is mostly due to the immigration of female population to the urban areas for getting some jobs in Kathiawar. In Kathiawar, the number of cultivating owners is miserably

* For details *Vide* Table No. 12 in the Appendix.

† For details *vide* Table No. 13 in the Appendix.

‡ Table No. 14 in the Appendix gives a comparative idea of the number of females per 1000 males for the various areas in India. Table No. 15 in the Appendix gives separate figures of the female ratio per 1000 males for every prominent State of Gujarat and also for all the districts of British Gujarat.

low* when compared to that in Gujarat. Hence the female folk are required to augment the family income by migrating into the towns, while in Gujarat the cultivating owners take more interest in agriculture in which they can afford to employ female labour with advantage.

Literacy : Out of the total population of 76,25,315 persons 9,39,491 were literate in Gujarat. Of these 7,96,883 were males and 1,42,608 females. Per 1000 males 201 were literate in Gujarat, 234 in Kathiawar and 330 in Baroda, while per 1000 females 39 were literate in Gujarat, 54 in Kathiawar and 79 in Baroda.† It is surprising to note that as regards literacy, either male or female, Gujarat fares badly as compared with Kathiawar. If further comparison is made of the male literacy figures as prevailing in the various age groups in Gujarat, Kathiawar and Baroda, we find that Gujarat comes off badly in all the age groups.‡ Out of the total population of 76,35,715 only 74,401 persons or 9 percent were literate in English. From these 74,401 persons only 4,918 were females; which means from among the total females in Gujarat hardly 1 percent ladies know English.

The standard of literacy varies considerably in the various units. Besides it also depends upon the comparative size of the units and the extent of urbanisation therein. Problems of education differ according to local circumstances. It is however necessary to bring about a mass awakening and to start a very vigorous literacy campaign as otherwise, the industries of Gujarat have to depend upon this comparatively backward and hence inefficient manpower.

Urban and Rural Population : There are 103 towns and 12,791 villages in Gujarat.§ Out of the total 77,11,450 population of Gujarat, 14,63,988 persons lived in the above mentioned 103 towns and 62,47,462 persons in the 12,791 villages,¶

* Per mille of total workers there are 67 cultivating owners in Kathiawar, 112 in the Bombay Presidency (including Sind) and 245 in Gujarat. Vide Kathiawar Economics by the present writer p. 79.

† Table No. 17 in the Appendix gives literacy by Age and Sex in Gujarat.

‡ Table No. 18 in the Appendix gives the comparative idea of literacy prevailing in the various age groups in Gujarat, Kathiawar and Baroda.

§ Table No. 8 in the Appendix gives in detail the number of towns and villages for every important State in Gujarat.

¶ For details Vide Table No. 16 and 19 in the Appendix.

The ratio between the urban and the rural population stands at 19:81 which means only one-fifth of the total population of Gujarat resides in the urban areas. Though this ratio compares favourably with the other parts of India,* it should be remembered that the high degree of urbanisation is due to the existence of 198 independent jurisdictions. These jurisdictions have their independent seats of Government (capital towns) which for reasons historical and local have attracted people to reside in them.†

Rural Population : Out of every 1000 persons in Gujarat 810 live in the villages.‡ Further classification shows that of every 1000 persons in the rural areas:—

- (a) 179 live in villages with over 2000 population, while
- (b) 523 live in villages with population between 500 and 2000 and
- (c) 298 live in villages with population under 500 which means per mille of rural population 821 are living in the villages below 2000 population.§ Stated in another way, there are
 - (a) 8,793 villages having less than 500 population,
 - (b) 2,462 villages having 500-1000 population,
 - (c) 1,146 villages having 1000-2000 population, and
 - (d) 401 villages having 2000-5000 population.

Thus nearly 69 per cent of the villages in Gujarat have a population under 500 and nearly 46 per cent of the rural population lives in villages with a population below 1000.

From our calculation if we exclude the cities of Ahmedabad and Baroda which between them have a population of 4,10,639 equivalent to 29 per cent of the total urban population, the ratio of urban population to the total population of Gujarat at once falls from 19 to 14 per cent. The figures for Gujarat in

* Table No. 20 in the Appendix gives the percentage of Urban and Rural population to total Population for the various units in India.

† Detailed figures in respect of the urban and rural population in the Prominent States are given in Table No. 16 in the Appendix.

‡ Per mille of the population the ratio between the urban and the rural population is 19:81.

§ Table No. 21 in the Appendix gives details of each State as regards the number of towns, villages and population distributed into such classified groups.

this connection compare unfavourably with one of its progressive States, viz. Baroda.* In the Baroda State there is a marked tendency among the population to reside in big villages.

Mobility of Labour: Within Gujarat's territory there are 103 towns and 12,791 villages out of which 8793 villages have less than 500 population.

As such, the various geographical factors come in the way of the efficiency of the worker in this Province. The prevalence of the caste system and hence his conventional and conservative outlook deter a villager from leaving his village for finding out wider opportunities abroad. Absence of educational institutions in the villages account for his illiteracy and being ignorant of the modern technique and literature, he is meak, shy, lacking in self-confidence and therefore in taking initiative. He is, in short, a fatalist.

Out of 76,35,715 persons only 9,39,491 were literate in Gujarat. Literate in the sense that they can write and read a letter to and from a friend! Of this number, the majority of the literates reside in the towns. The villages are devoid of (i) proper leadership, (ii) proper educational facilities and (iii) roads and railway communications. Thus there is a lack of social contact between the urban and rural areas. These handicaps are responsible to a great degree for the backwardness and conservative outlook of the village worker. Customs and conventions are hard to die and better social contact between the rural and urban areas will achieve a great deal in this connection.

However, for achieving the goal of industrialisation and for making the proper use of the region's economic resources what is more important is to find out whether enough hands are available for the new enterprises. In this connection it is therefore essential to find out the strength of the able-bodied non-workers in Gujarat.

Occupational Returns: Out of the total population of 76,35,715 in Gujarat, 23,74,077 were principal earners, 11,35,935 working dependents,[†] and 41,25,703 non-working dependents.

* Table No. 22 in the Appendix gives comparative idea of the distribution of Village Population in different units in British Gujarat and Baroda State.

† Table No. 23 in the Appendix gives the details about the Occupations or Means of Livelihood of these workers.

Thus out of 76,35,715 persons only 35,10,012 were employed in some kind of activity to augment the family income; they were therefore 'workers' while the remaining 41,25,703 depended upon these 'workers' for their livelihood and hence they were 'non-workers.'

The ratio of workers to non-workers stands at 460:540 per mille of total population. Out of the Gujarat's total population if persons aged under 10 and over 55* were excluded, 49,79,091 persons belonging to the working Age Group were left behind, out of whom only 35,10,012 persons were employed, and 14,69,079 remained unemployed. Hence in studying the industrial problems of Gujarat, we must devise the ways and means as far as possible to find employment for these fourteen lakhs adult non-workers.

Proportion of workers in each Class is given below :-
Per 1000 workers

Exploitation of Animals

and Vegetation	730	Public Administration	10
Minerals	1	Professions and Liberal Arts	16
Industry	100	Persons living on their income	4
Transport	13	Domestic Service	9
Trade	42	Insufficiently described occupations	59
Public Force	7	Unproductive	9

Out of every ten workers in Gujarat seven are agriculturists, and two are engaged in industry and trade. All other kinds of occupations together employ only one out of ten.†

The most striking feature which is borne out by these statistics is the predominance of agricultural occupation in the economic life of Gujarat. Preponderance of agriculture in its present backward condition also indicates the low standard of living of the masses in this region.

Existence of so many independent jurisdictions untill very recent times, absence of adequate means of transport, and illiteracy are mainly responsible for the lack of initiative for industrial pursuits on the part of the people. As it is, only 10 per cent of the total workers is found employed by Industry.

* Taking 2,21,882 for the age group 55-60 out of a total of 4,41,882 between 50-60.

† Table No. 24 in the Appendix gives details about the distribution of workers in the various occupations.

Industry : Out of every ten workers in Gujarat only one is engaged in industry. In all in 1931 only 3,49,260 persons were employed under this head within this region. The statement below gives us some clue as regards the importance of the various industries in the economic life of Gujarat.

Industry		No. of persons employed*	
Textiles	1,25,882	Chemical Products, etc.	11,797
Hides, Skins etc.	20,905	Food	10,313
Wood	36,575	Dress and Toilet	53,506
Metals	15,494	Buildings etc.	15,343
Ceramics	33,011	Miscellaneous and undefined	26,434

Textiles is the largest single item contributnig to the total. About 36 percent of the persons engaged in industries in Gujarat are engaged in the textile industries. However, a number of workers under this head are cottage workers.

An examination of other items reveals that mostly artisans, craftsmen and cottage workers are engaged under the heads 'Hides and Skins,' 'Wood', etc. Workers in 'Metals' are mostly blacksmiths and copper-smiths, and the workers in Ceramics, potters and makers of earthenwares. The makers of chemical products are mostly engaged in refining vegetable oils, while those engaged in 'Food' industries are rice-pounders, huskers, butchers, sweetmeat and condiment makers and tobacco manu^ufacturers (bidi-makers). Workers under the head 'Dress and Toilet' are dress-makers, washers, cleaners and barbers,† and those engaged in 'Buildings', etc. are mostly stone-cutters, brick layers, masons and the like.

Though of late the factory system has made its appearance to a limited extent in most of these industries, the bulk of them still remain unorganised and on the handicraft basis.

Trade: Out of the total 35,10,012 workers in Gujarat, trade employed only 1,46,128 persons. The statement below gives the distribution of workers under the various sub-heads‡ :—

* Table No. 25 in the Appendix gives the details about the total male and female principal earners and working dependents under each head.

† "Darjis," 'Dhobis,' 'Bhangis' and 'Hajams'.

‡ Table No. 26 in the Appendix gives the details about the total male and female principal earners and working dependents under each head.

	No. of persons employed
Trade in Textiles	12,637
Trade in Skins, Leather, etc.	1,321
Trade in Wood	1,076
Hotels, Cafes, Restaurants, etc.	7,635
Other Trade in Food Stuffs	64,418
Trade in Means of Transport	2,977
Trade in Fuel	2,701
Trade in Articles of Luxury	2,177
Trade in Other Sorts	35,309
Banks, Establishments of Credits, etc.	14,818
Brokerage, Commission Agency, etc.	1,059

From the above statistics it is clear that more persons are engaged in 'Food Stuffs' trade. Next to this in importance is the 'Trade in Textiles' and Banks, Establishments of Credits, etc.

Food and clothing are the primary needs of mankind and hence the existence of more dealers under this head is quite natural. Traders in 'Food Stuffs' are mostly the dealers in grain and pulses, sweetmeats, sugar and spices, dairy products, tobacco, etc. Traders in 'other sorts' include general store-keepers and shop-keepers otherwise unspecified, including itinerant traders, pedlars and hawkers.

The large number of banks and establishments of credits, etc. gives some idea of the existence of indigenous bankers and money lenders who advance loans to the agriculturists against the commercial crops of Gujarat like cotton, tobacco, oilseeds, etc. 'Hotels, cafes, and restaurants, though they are the boarding houses for many of the workers in towns, employed only 7,635 persons, while 'Trade in Articles of Luxury' which can give us some clue as to the standard of living of the people of this province, employed a miserably low number, viz. 2,177 persons.

Female Occupations: Out of the total 37,15,346 female population of Gujarat, only 12,08,447 were workers while the remaining 25,06,899 were non-workers in the year 1931. Thus out of every 1000 females in Gujarat, 325 were workers and 675 non-working dependents. Females under 10 and over 55*

* Taking 1,08,460 for the age-group 55-60 out of a total 2,08,460 for this age-group.

were 13,00,163 in Gujarat. If these be excluded as incapable of doing work we find 24,15,183 females available for work. Out of which only 12,08,447 were employed in some kind of productive work. While studying the industrial possibilities in Gujarat, if possible we should suggest some suitable occupations which can induce these remaining 12,06,736 females of the working age-group to work in.

The statement below gives the chief female occupations in Gujarat.

	No. of females employed
Agricultural Labourers	6,36,326
Forestry	481
Textiles	31,290
Basket Makers and other Industries of wood materials, etc.	5,013
Rice Pounders, Huskers and Flour Grinders	2,076
Grain Parchers	88
Dealers in Dairy Products and Eggs etc.	2,861
Trade in Fuel	1,154
Washing and Cleaning	1,876
Scavenging	4,914
Midwives, Vaccinators, Compounders, Nurses and Masseurs	594
Procurers and Prostitutes	109

The above statistics show that from the 12,08,447 adult females returned as workers, no fewer than 6,36,326 are agricultural labourers. As regards employment, next in importance is the textile industry. Only 7,089 females are employed in basket-making, paddy husking and flour grinding. Thus agriculture in the rural areas and the textile industry in the urban areas are the mainstay of their life.

They have not got enough openings in trade. Dealing in dairy products, eggs and fuel have hardly attracted 4000 females. Ways and means should therefore be devised for the proper education and training of females which open up new avenues of employment to them in trade as well as industry.

Case for the drive towards Industrialisation:

The preponderance of agriculture in Gujarat's economy is vividly brought home to us by the above statistics. Of the total workers 73 per cent are engaged in the exploitation of

animals and vegetation. Besides, fourteen lakhs adult persons are non-workers and as such not engaged in any of the economic activities of the province either due to want of work, or geographical inertia. On the other hand, except in the case of textiles and oil crushing and to a certain degree in small industries like metal works, rice and flour mills, etc., factory life is conspicuous by its absence, while each consecutive Census shows an increase of population in Gujarat. Hence the number of non-working dependents as compared to the working dependents is steadily increasing.* Agriculture in its present state cannot maintain any additional number. Therefore other industrial avenues must be provided to the growing population of Gujarat. In this connection, economic and industrial resources capable of further development are lying at the disposal of the people and their development will definitely give employment to a sufficiently large number.

* Vera Anstey : *The Economic Development of India* (1936) pp. 60-61 & 522.

CHAPTER II

AGRICULTURE

The importance of agriculture to the province of Gujarat cannot be underrated. It is the very back-bone of its economic life. This fact is easily brought home to us when we find that out of the total 35,10,012 workers in Gujarat, 26,16,384* were employed in agriculture in 1931. Which means out of the total number of workers in Gujarat, 73 per cent were employed in agriculture. If the population statistics were further analysed, out of every 1000 persons 810 persons live in rural areas.

Extent

The following statement gives us the idea of the sown area to total area in Gujarat and indicates the possibilities of extension of cultivation.

(In millions of acres)†

Total area	Forests	Not available for cultivation	Cultivable waste	Current fallows	Net area sown	Percentage of sown area to total area
21.6	1.5	2.5	2	1	14	67

Of the total 21.6 million acres area of Gujarat 1.5 million acres is covered with forests. 14 million acres is available for cultivation, 2 million acres is the cultivable waste and 1 million acres remains fallow every year. The cultivable waste is thus more than 10 per cent of the total area of Gujarat and together with the fallow land it constitutes one-fourth area of the cultivated land. A further extension of cultivation is possible by bringing these lands under the plough. The cultivable waste requires State initiative and support for land reclamation, control of malaria, and other measures to induce people to settle on such lands, besides advance of loans at a nominal rate for the improvement of land. The fallow land mainly requires the adoption of a suitable system of rotation of crops.

*	24,54,666	employed in cultivation
	89,665	employed in stock raising
	72,053	engaged in Trade in Food Stuffs
	26,16,384	

† Table No. 27 in the Appendix gives details for the British Districts, Baroda State and the various other Gujarat States.

Crops : Food Crops and Non-Food Crops

The relative importance of the main crops in the agriculture of Gujarat is shown by the figures given in the following statement:*

Food Crops	Acres	Percentage to total sown area.
Jowar	2,110,000	16.0
Gram and Pulses	1,410,000	11.0
Bajra	1,120,000	8.2
Rice	800,000	6.0
Wheat	560,000	4.0
Maize	260,000	1.6
Ragi, Barley etc.	100,000	.8
Fruits, Vegetables, Spices etc.	93,000	.6
Sugar	11,000	.1
Miscellaneous	100,000	.7
Total Food Crops	6,564,000	49.0
Cotton	3,000,000	23.0
Fodder Crops	2,250,000	17.0
Oil Seeds	1,000,000	8.0
Tobacco	260,000	1.6
Miscellaneous	196,000	1.4
Total Non-Food Crops	6,706,000	51.0

Jowar and Bajra are the major cereals among the grains and they are the chief articles of diet of the inhabitants of this province. They are comparatively coarse, inferior and cheap. Rice and wheat are grown in comparatively restricted areas. The nutritive value of wheat is higher than all the above cereals but it has a restricted consumption. Hence the health of the population is comparatively poor.

The recent war-time increase in the output of foodcrops especially in Gujarat States has been in the less nutritive cereals like Jowar and Bajra. What is therefore needed is not merely an increase in the quantity of food produced, but also an improvement in its quality, and a greater attention to sources hitherto not developed.

* For details vide Table No. 2 in the Appendix.

Low yield and its Causes

The average yield of crops in our country is very low as compared with those of other countries.†

(Lbs. per acre)

	Rice	Wheat	Cotton
Egypt	2998	1918	535
Japan	3444	1713	196
India	1240	660	89

The yield is not only low but also shows wide variations from province to province.

(Lbs. per acre)

	Rice	Wheat	Cotton
Bombay	922	420	71
Madras	1012	—	—
U. P.	—	750	121
Punjab	—	750	160

The above statement proves that compared to other provinces yield per acre is low in the Bombay areas. The percentage area under irrigation to the total area sown in Bombay is only 16 while it is 54, 30 and 28 in the Punjab, U. P. and Madras respectively. Thus in those provinces where irrigation facilities are more, the yield per acre is higher.

As for Gujarat it is however gratifying to note that its soil is fertile and therefore yield per acre is comparatively more in this region.

(Lbs. per acre) ‡

	Rice	Wheat	Cotton
Ahmedabad	1440	560	125
Kaira	1320	600	115
Broach	900	600	130
Panch Mahals	1200	700	120
Surat	1560	560	120

If owing to the better fertility of soil and suitable climate the yield is more when compared with the other parts of the country, it can well be imagined what a tremendous change would have been brought about in yield in this region by providing it with

† "Statistical Year Book of the League of Nations, 1933-34"

‡ Agricultural Statistics of India, Volume I, 1936-37.

more irrigation facilities! If the percentage of area under irrigation to the total area sown in Bombay is only 16 it is really disappointing to note that the same falls to 4 for Baroda and to 3 for British Gujarat as well as All Gujarat.

There are several causes responsible for the low yield of the land; the most prominent among them being the following, viz. (i) Deterioration of Soils, (ii) Inadequate or irregular rainfall, (iii) Unsatisfactory systems of Cropping, (iv) Lack of good seed, (v) Poor live-stock and other equipment, (vi) Sub-division and fragmentation of holdings, (vii) Want of adequate credit facilities, (viii) A primitive system of marketing, and above all (ix) Lack of initiative and enterprise on the part of the illiterate cultivator oppressed by an outmoded system of land tenure and tenancy.

(i) Deterioration of Soil

The following statement about the yield per acre in the Ahmedabad District gives an idea that soil is progressively deteriorating in fertility in Gujarat.

(Lbs. per acre)*			
Year	Rice	Wheat	Gram
1937-38	1278	435	840
1942-43	1142	428	840

Several causes are responsible for this decline in fertility. The most prominent among these is lack of manures.

Manures : Manure secures the first place amongst the causes that have led to increase in yields. Under the head of Manure is included not only artificial manure but in an even greater measure an increased supply of farm-yard manure. It is acknowledged on all hands that what is taken off the land in crops must be put back into the soil, or else it will suffer exhaustion. If the soil is to maintain its productive powers and retain its nutritive elements, it is imperative that it must be tended with manure and carefully looked after. But the wasteful practice of using cow-dung for fuel coupled with the farmer's inability to purchase artificial fertilizers which are comparatively costly, has led to the removal year after year in the form of produce of the valuable soil properties more than are replaced by nature and the practice

* Season and Crop Reports of the Bombay Province for the years 1937-38 and 1942-43.

of the cultivator. Sometimes the lands are also rendered gradually unfit for profitable cultivation by the formation of injurious salts and by the action of running rain or flood water in either eroding the surface soil or burying it beneath deposits of sterile mineral.

(ii) Irrigation and Water Supply

It is already an established fact that any deficiency in rainfall causes harm both to man and cattle and it often results in a famine. About 38 famines have occurred in this province between 1559 and 1946* most of which were due to rain failure. Irrigation therefore ought to play a significant part in Gujarat's agricultural economy. The following table shows the existing position of irrigation facilities within this province :

(In million acres)†		
Gross area cultivated	Area Irrigated‡	Percentage of Irrigated to total sown area
14	0.5	3

* From among these famines the following were the worst :

Year	Samvat	Famine Known as
1631-32	1687	'Satasio'
1718-19	1775	'Panchotra'
1731-32	1787	'Second, Satasio'
1747	1803	'Tilotra'
1790-91	1847	'Sudatala'
1899-1900	1956	'Chhapanio'

"During these famines at times children were sold for bread, at times men ate one another and at times people forsook their faith for a piece of bread ! " : Bombay Gazetteer, Vol. VIII

† Table No. 28 in the Appendix gives details about the Irrigated land for (i) the various Districts of British Gujarat and also (ii) the various Gujarat States.

‡ This land is irrigated in the sense that it receives water mainly from wells.

Gujarat is also liable to floods. The most prominent reason in this connection is the silting of the Gulf of Cambay. As all the Gujarat rivers flow into this Gulf, there has been a rise in the bed level of the rivers. Consequently during the monsoon when the rivers are flooded their upward banks are broken by the waters. They overflow the adjoining territories, drain away humans and cattle wealth, and destroy crops, huts, cottages and houses. To add to this adversity the railways (that are constructed on a slightly higher level in Gujarat) have disturbed the natural drainage of the province. The old drainage lines have been silted up by the encroachment of the sea on the coastal villages of Broach while the opening of the new drainage lines in the Gackwad's territories is responsible for bringing more waters into Gujarat - Sir F. Lely's Evidence before the Irrigation Commission 1904; Part IV, p. 78.

This is a very sad state of affairs. For second crop or winter crop is possible only in half a million acres irrigated land in Gujarat. The remaining 13.5 million acres cultivated land depends for water supply solely upon monsoon waters. The following statement gives the percentage of irrigated area to the total cultivated land for the various parts of India.*

Unit	Percentage of irrigated to total cultivated area	Unit	Percentage of irrigated to total cultivated area
The Punjab	54	United Provinces	30
Madras	28	Bombay (inculding Sind)	16
Baroda	4	British Gujarat	3
All Gujarat†	3		

The figures reveal the great inadequacy of irrigation facilities in Gujarat. Therefore possibilities of irrigation projects such as the construction of tanks and wells should be explored and wherever feasible encouraged. More so because the relief of the land (its gradual slope from east to west) renders it very difficult to utilise the flood waters for agricultural purposes.†

(iii) System of Cropping

System of cropping is also defective in Gujarat and the peasants require proper guidance in this connection. But it is equally true that without the comprehensive survey of the 'flora' and 'fauna' of this region, no expert advice can be given to them; and the farmers cultivate those crops which they think will pay them more. Thus in some parts of Gujarat continuous raising of cotton crop is displacing the system of rotation and alternate cropping with the result that certain plant diseases and pests are appearing. Such departures from the system of alternate or sequential crops intensify the evil of soil depletion.

(iv) Lack of Good Seed

Seeds of better variety have not come into popular use in this province. Very little progress is made in this direction and except cotton crop in the cultivation of which the

* Agricultural Statistics of India Volumes I & II 1933-34.

† Our Estimate.

†† "In times of floods water flows with the velocity of 75 lakhs of cu. ft. in a second in the river Mahi which if it can be stored will become a permanent boon to the province."

J.M.Mehta : *Rural Economy of Gujarat*, 1935.

Government of Bombay, Baroda and Rajpipla evince interest, other crops are practically neglected by the Gujarat States. The neglect of the main crops Jowar, Bajra, Rice, Wheat and Oil-seeds is to be regretted in view of the prominence of these grains in the diet of the people.

(v) Poor Live Stock and other Equipment

Of the total 6.5 million cattle in Gujarat more than half is of inferior quality and a considerable number amongst this is worthless, diseased and aged. Yet, it is lingering upon its existing inadequate grazing facilities. It is a mere drag on Gujarat's resources than an aid to the exploitation thereof. The density of cattle per 100 acres of sown area is 67 in India while it is only 50 in Gujarat. Fewer but fitter animals would therefore be the proper objective of any policy for improvement of our cattle. This objective will be reached only when we eliminate the 'Scrub' cattle, raise the quality of the rest by selective breeding and keep them well-fed by providing adequate facilities for grazing.*

The position is in no way better regarding implements. The farmer uses a wooden plough which stirs rather than inverts the soil. There are such 8 lakhs ploughs† in Gujarat. It is therefore necessary in this connection to familiarise the farmers with the advantages of using better variety ploughs which are at present sold through the Government departmental agencies.

Besides, the Gujarat farmer cuts the harvest by hand, thrashes the grain under the bullock's feet and winnows cereals by the agency of wind. He is still ignorant about many labour saving implements invented and utilised in western countries. In Europe, ploughing is done by machine tractors and agricultural operations like growing, thrashing, reaping are as well accomplished by machine. Fodder cutters, cane crushers, winnowing machines and other implements need also be introduced in the agricultural operations in this province. But owing to the ignorance and utter poverty of the farmer, without an active State interest the position is not likely to improve in the near future.

(iv) Size of Holdings

No information regarding the number of cultivators in the

*Nanavati and Anjaria: *The Indian Rural Problem*, 1944.

... †For details vide Table No 29 in the Appendix.

various Gujarat States is available, excepting Baroda. However the figures for British Gujarat and Baroda prove that the average area per cultivator is much smaller in Gujarat than it actually ought to be. The following statement gives an idea about the land cultivated by a cultivator on an average in British Gujarat, Baroda, different parts of India and some foreign countries.

Unit	Cultivated area per cultivator in acres	Unit	Cultivated area per cultivator in acres
U. S. A.	148	England	62
Denmark	40	Holland	26
Bombay	12.5	North-west Frontier	11.22
The Punjab	9.18	British Gujarat	5
Baroda	4	Bengal	3.12
Bihar and Orissa	3.09	Assam	2.96
United Provinces	2.51		

The size and distribution of holding in the different parts of India prove rainfall to be the dominant factor in determining the size of holdings. Where rainfall is abundant and certain, the size of holding is much smaller than in areas where rainfall is inadequate and precarious. In this connection Gujarat is not happily situated in matter of rainfall yet the average holding per cultivator is not very high.

Sir Malcolm Darling after examining the conditions of different districts in the Punjab comes to the conclusion that under the present conditions, to maintain the farmer in decency, independence and comfort, agriculture on 8 to 10 acres is wholly insufficient. Even in the richest part of England where scientific agriculture is carried on 10 acres is considered to be the smallest area on which a man can support a family without any other industry to help him. Where there is no live-stock industry or market gardening, 20 acres are required. In Europe 25 acres represent the economic unit for a peasant who is not a market-gardener. With these estimates before us we can definitely conclude that the average holding of 4 or 5 acres per cultivator in Gujarat is far below the requirements for a minimum standard of living. This evil of small farms is being gradually accentuated by fresh sub-division.

Sub-division and Fragmentation : The causes of sub-

division and fragmentation are (a) the increasing pressure of population, (b) absence of diversified occupations and (c) the law of inheritance and succession prevailing within this region. There is a custom to split up the property into as many fragments as there are different soils, so that each heir may get an equal share of every kind of land.

The excessive fragmentation results in the waste of time and in addition (i) impedes current cultivation (ii) comes in the way of permanent improvements of the land (iii) handicaps the cultivator from living upon his farm (iv) makes orderly organisation of labour and capital difficult (v) often checks the desire to grow second crop (vi) sometimes throws land out of cultivation (vii) causes enmity amongst neighbours leading to litigation and permanent feuds and (viii) produces a generally uneconomic situation. Besides waste of labour and cattle power, waste of land in hedges and boundary marks, waste of manure and increase in cost of production are also the inevitable concomitants of sub-division and fragmentation. Watching of crops is rendered impracticable, wells cannot be sunk economically, labour saving implements cannot be used, change in cultivation is rendered inconvenient and roads and water channels cannot be provided under such conditions. Therefore agriculture as an industry suffers from general backwardness. Added to this, as each generation enters into patrimony, the extent of land that goes to the share of each heir diminishes, with the result that there is no steady and orderly development of the land. The total effect is that with every diminution in the size of the holdings, fixed costs come to bear a larger proportion to the total value of the yield and render the holdings uneconomic. Hence the measures have got to be adopted to prevent further sub-division and to consolidate the small farms.

Case for consolidation: The problem of the reconstitution of holdings is thus one of the most important in any scheme of agricultural reform. Many economists and administrators have made recommendations for the consolidation of holdings; and following their suggestions various measures have been adopted to solve this problem in various countries. The common remedy suggested for the consolidation of holdings is to substitute by exchange, in place of isolated

strips of land, land in compact blocks.

In other countries attempts have been made to create and to maintain reasonably sized and reasonably situated economic holdings through drastic legislation like (a) compulsory expropriation; (b) compulsion on all concerned to accept restripment when a certain fraction of the landholders desire it; (c) subsequent indivisibility of reconstituted holding; (d) exemption of the reconstituted holding from seizure for debt and (e) not allowing the reconstituted holding to be combined with other holdings. As a result, the value of land is said to have trebled in some cases and to have increased over 60 percent in others, the general consensus of opinion being that yields of crops have increased while the cost of production has been reduced.

As for Gujarat, in 1916 a resolution was moved for checking minute sub-division of agricultural lands in the Bombay Legislative Council, but it was lost as the majority considered it impracticable to alter the Law of Partition. Otherwise this measure would have affected British Gujarat. Later on though consolidation of holdings as a method of combating the evils of fragmentation is mooted in different Indian provinces and States, practical measures so far have only been adopted in the Punjab, C.P., U.P., and the Baroda State. As far as Gujarat is concerned the Baroda State thus happens to be the pioneer in taking measures for consolidation. The Report on Agricultural Indebtedness in Baroda State made the following proposals :-

(i) Granting of facilities for voluntary exchanges of fields with a view to consolidation; (ii) The enactment of permissive legislation empowering Government to undertake redistribution of land wherever people are willing; (iii) The fixation of the lowest limit below which partition of agricultural land should not be recognised.

These proposals were accepted by a Special Committee appointed to examine them and were subsequently passed in the legislature. As a result (a) the limit of sub-division of holdings was fixed at 8 bighas for 'jirayat', 3 for 'bagayat' and $1\frac{1}{2}$ for 'kyari' lands. Besides (b) under the Consolidation of Agricultural Holdings Act, 1920, on the application of two-thirds of the 'Khatendars' of a village holding not less than half of the cultivated area, a scheme of consolidation was to be prepared,

taking care to see that the new holdings were as far as possible equal in area and value to the old holdings and provided independent access to each field. Differences in the value of the original and the new holdings were to be settled by cash payment and the legal burdens were to be transferred to the new holders. Further (c) by an act of 1933, for the sale of any land below the above mentioned minimum limit, the right of purchase was given to the holders of the neighbouring fields.

In spite of these legislative measures it is reported that the results achieved are not satisfactory. From August 1935 to March 1938, only 1518 numbers with an area of 6,200 bighas were consolidated into 435 survey numbers. These poor results are attributed to want of suitable staff and to the Act being presuasive and not compulsory. Recently however (a) the restrictions on the minimum size of plots and (c) the law of pre-emption are abolished. In addition to consolidation by legislative measures, voluntary exchanges through the formation of co-operative societies are encouraged. By this process between 1926 and 1937, 1336 members of 74 societies consolidated 11,427 blocks measuring 50,407 bighas into 10,188 blocks. The hindrances to consolidation through co-operative societies are (a) indebtedness on a large scale (b) lethargic attitude of the people, (c) sentimental attachment to land (d) want of adequate areas of the same kind of land for exchange, (e) lack of adequate and persistent propaganda and (f) lack of efficient staff to carry out the legislative measures.

It is thus clear that excessive fragmentation of land is one of the heaviest handicaps for economic cultivation. This tendency is likely to be aggravated with the growth of population. While the measures adopted by the Baroda State are not satisfactory. As far as holding of agricultural land is concerned, it is however quite clear that we are aiming at its optimum size which is to be determined by balancing the advantages and disadvantages of large-scale and small-scale cultivation. As a first step it is therefore desirable to aim at the creation of holding big enough to enable the peasant and his family to subsist fairly decently on the produce. The problem of fragmentation can be solved by consolidation through (i) co-operative societies, (ii) voluntary effort, (iii) education, (iv) propaganda and in the last resort (v) by judicious compulsion. For this purpose some

of the above mentioned measures adopted in European Countries deserve a serious trial. But the problem of sub-division raises issues regarding surplus population and rural unemployment and it cannot be solved without a comprehensive reconstruction of the land system.

It is thus realised that even though agriculture is the mainstay of the people of this province, so far no adequate measures are adopted to improve the conditions of this industry. Consequently after the price depression of 1930 right upto 1937 agriculturists gave up a considerable land from cultivation in many of the Gujarat States and even in the most progressive zone of Gujarat, viz. British Gujarat, agriculture showed no progress, the area under cultivation remaining almost constant*.

(vii) Agricultural Finance

Since the farmer has to depend upon outside capital to finance his agricultural operations, it is imperative to notice how far the present system of finance is effective and efficient, what are its defects and what improvements can be effected therein and whether it is possible to adopt any other measures to provide better facilities. The nature of the agriculturist's business is such that he must borrow. From the point of view of the period for which he requires accommodation, the financial needs of the agriculturist can be broadly classified into three divisions:- (i) Short-term or seasonal credit for purchasing seeds, fertilizers, paying wages and other casual charges such as rent, interest on debt and land revenue. This loan is generally repayable out of the proceeds of the next harvest. (ii) Medium-term credit for purchasing live-stock, expensive implements and for carrying out land improvements of average duration. This loan is repayable in instalments spread over two to five years. (iii) Long-term credit for purchasing land and agricultural machinery and for effecting permanent improvement on lands such as drainage and irrigation.

It is therefore necessary to evolve a system of agricultural finance which suits the needs of industry and does not lead the farmer to extravagance and ultimate ruin. Easy credit facilitates reckless expenses and encourages uneconomical habits. The system of finance should therefore be so devised as to

* For further details vide Table No. 30 in the Appendix

wean the farmer from extravagance and inculcate in him the habits of thrift, prudence and fore thought. It is all the more necessary to do so, as he is illiterate and ignorant. He forms the bulk of the masses and therefore upon his prosperity depends the prosperity of the other industries. For ultimately it is his demand which determines the size of the market for every manufactured article.

The following four agencies finance agriculture in Gujarat:-

- (i) State, (ii) Agricultural Banks, (iii) Co-operative Credit Societies and (iv) Private Money Lenders.

But the State has restricted its system of Taqavi loans only to emergency purposes like famine, flood, locusts, pests and other epidemics which cause the failure of crops. While except in the British, Baroda, Rajpipla and Cambay areas, the Agricultural Banks and the Co-operative Credit Societies are conspicuous by their absence. Besides even in the above territories the co-operative movement is still in its infancy and it has not achieved anything remarkable. It still marks time for its success.

The following are the main causes which have so far retarded its progress within this region:- (i) The ignorance and illiteracy of the peasant, he therefore cannot appreciate the importance and advantages of co-operation. (ii) The elaborate and long drawn process of obtaining loan from the co-operative society. The peasant does not like to answer in details the exhaustive information required about his financial standing and when he wants the loan he cannot afford to wait for more time. (iii) The co-operative society advances loan only for productive purposes, that too, to a solvent peasant from whom it can easily recover the amount. But such a peasant gets cheap, easy and immediate credit from a money lender. (iv) The members of the society are jointly and individually liable for the loan they take from the society and it often becomes difficult to induce other members to stand the guarantee. Besides (v) often the peasant requires money for non-productive purposes based on customs and conventions like marriage ceremonies, caste dinners during marriage festival and after the death of relations etc. For these purposes he cannot obtain any loan from the co-operative society. But the money-lender knows the peasant well and therefore he often advances loan to him

at such occasions. Thus the money lender is the main prop in Gujarat on whom the structure of finance rests and about ninety-five percent of the present capital invested in agriculture is advanced by him.

Rural indebtedness: The Bombay Provincial Banking Enquiry Committee estimated the total debt of British Gujarat* at Rs. 11,75,00,000 in 1930. Viewed from this angle the total area of Gujarat is thrice that of the British Gujarat. we therefore get its total indebtedness to be of Rs. 34,25,00,000.

However a little later in the year 1933-34 the Bhavnagar State in Kathiawar after a very comprehensive survey estimated the total indebtedness of the agriculturists within the State at Rs.18 per acre of the cultivated area. Viewed from this angle the total land cultivated in Gujarat stands at 14 million acres. Therefore 14 million acres x 18 Rupees debt per acre of cultivated land gives us the total rural indebtedness in Gujarat to be of Rs.25,20,00,000. But the net debt per acre of cultivated land was Rs.20 in North Gujarat and Rs.52 in South Gujarat†. Thus per acre indebtedness was higher in British Gujarat even in the year 1929-30. The indebtedness has definitely risen to 25 per cent by the year 1935 due to the slump in the prices of agricultural produce after 1929-30‡. Therefore we may conveniently assume the total rural indebtedness in Gujarat to be of Rs. 35 crores.

This our estimate is quite conservative when we realise that the total rural indebtedness was estimated at Rs.8 crores by the Baroda Economic Development Committee in 1918-19. The Baroda State area comprises about one fifth of Gujarat, hence taking the indebtedness for all Gujarat to be five times more than that of Baroda, the total rural indebtedness of Gujarat would stand at Rs.40 crores.

Besides the total land revenue of Gujarat stands at Rs. 3 ½

* Gujarat is divided by the Committee into 2 tracts -North Gujarat and South Gujarat - the dividing line being the river Narbada.

† Vide Report of the Bombay Provincial Banking Enquiry Committee 1929-30, Volume I page 42

‡ Total rural indebtedness in India was estimated at. Rs 900 crores in 1930 by I. C. B. Committee and at Rs.1200 crores in 1935 by Dr.R. Mukerjee.

crores,* and, in the past years the ratio between the land revenue and rural indebtedness was considered to be of 1: 8.† Therefore by multiplying Rs. 3 $\frac{1}{4}$ crores total land revenue by 8 we get the total rural indebtedness of Gujarat to be of Rs. 30 crores.

But the rural indebtedness in India has increased by 100 per cent between 1930 and 1938.‡ There is therefore a very large increase in the rural indebtedness between the years 1930 and 1938. Only the war time prosperity of 1938-43 has to a great extent counter-balanced this factor. Therefore taking into consideration both the above phenomena—slump of 1930-37 and boom of 1938-43—our estimate about the total agricultural indebtedness in Gujarat of Rs. 35 crores is a very conservative one.

One of the outstanding results of this growth of debt has been the steady expropriation of the cultivator's land by the money lender. The table on p. 52, relating to the possession of holdings in British Gujarat for the years 1926-27 and 1936-37, illustrates this statement.

It is thus clear that during this period of ten years between 1927 and 1937, the agriculturists lost 1,42,000 acres of land while the non-agriculturists extended lands in their possession to the extent of 2,16,000 acres. The number of non-agriculturists increased from 75,000 to 1,10,400 during this period which means an increase of 35,400 non-agriculturists while the corresponding increase in the number of agriculturists was only 15,950. Incidentally it might be noticed from this table that while on an average the agriculturists have 6 acres of land per head, the non-agriculturists have 10 acres each.

As remedial measures, efforts should be made firstly to get the peasant out of indebtedness by regulation of (i) accounts, (ii) interest and (iii) registration of money lenders. Moratorium, Conciliation of debts and their compulsory scaling down will also help a great deal in this connection. After achieving

* Table No. 31 in the Appendix gives the Land Revenue Receipts of British Gujarat, Baroda and other prominent States of Gujarat.

† Vide Life and Labour in a South Gujarat Village (1930) by G. C. Mukhtyar, pages 20-21.

‡ The total rural indebtedness of India was estimated at Rs.900 crores in 1930 by I. C. B. Committee and at Rs. 1800 crores in 1938 by Mr. E. V. S. Maniam.

Possession of Holdings in British Gujarat

1926-27 & 1936-37*

Details of Holdings	Number of persons ('000)				Area Held ('000)			
	Agriculturists		Non Agriculturists		Agriculturists		Non Agriculturists	
	1926-26	1936-37	1926-27	1936-37	1926-27	1936-37	1926-27	1936-37
Upto 5 acres	229	244	46	71	487	465.9	112	172
Bet. 5 & 15 acres	84	87	18	26	713	721.7	158	224
„ 15 & 25 acres	20	20	5	6	376	356.8	92	122
„ 25 & 100 „	14	12	5	6	597	515.6	256	282
„ 100 & 500 „	.5	.5	0	1.3	150	133.2	152	203
Over 500 acres	.2	.05	1	.1	26	13.8	129	112
Total	347.6	363.55	75	110.4	2349	2207.0	899	1115

* Table prepared from the Bombay Land Revenue Administration Reports, 1926-27 and 1936-37.

the desired aim, in order to secure him from future debt better financial provision for his occupation has got to be provided for. Either provision of finance should be made by the State from its treasury or by the establishment of co-operative organisations for credit and non-credit purposes. But as the principle of co-operation is not known in the greater part of Gujarat, State provision from its treasury is more welcome. In addition proper provision of law has got to be provided for the relief of the debtors and for their protection against oppression and deceit by the money lenders.

(viii) Agricultural Marketing and Transport

In the absence of well-organised markets, the cultivators in Gujarat have to deal with ordinary merchants for the disposal of their produce; and in this they have to suffer much. They do not get the full value of their produce. Being pressed by the money lenders on the one hand and the rent collectors on the other, they sell off their produce in the first available market at times for even an uneconomic price. A long chain of dealers and middlemen makes the most of this glutting of markets soon after the harvest and leaves only a bare subsistence to the farmer. According to the Report on Marketing of Wheat in India (1941) out of a rupee paid by the consumer only eight annas and a quarter go to the real producer. It is therefore necessary to organise the markets in Gujarat at the Taluka towns and the various convenient centres of the Taluka, for the disposal of the agricultural produce.

Lack of sufficient finance and of adequate transport and warehousing facilities, the absence of grading and of standard weights and measures account for this sad state of affairs. The farmer who is short of ready money is compelled to sell his produce for what it fetches and he obtains very low price because of the above-mentioned handicaps.

It should also be realised that inadequate transport facilities lead to wide variations in prices of the same commodity at different centres. Thus gram is one of the staple food grains of Gujarat and as such it is grown invariably in almost all the Gujarat States. Its price in March 1936 was Re. 1-12-0 per maund* at Bansda, Re. 1-1-3 per maund

* Maund means 40 seers of 40 Tolas each.

at Balasinor and Re. 0-12-9 per maund at Santrampur.*

This analysis about the variation in price during the same month at the various centres proves the importance of transport in the marketing of the agricultural produce. As Bansda is nearer to Surat and Bombay and it is having fairly good transport facilities, comparatively high prices are offered for the agricultural produce in its markets. But Balasinor is far away in North Gujarat. Just like Bansda it is also not on the railway line†. Hence its produce fetch comparatively low price in its markets. While as for the Sant State, it is a hermit State lying on the north-east border of Gujarat. It has been devoid of any adequate transport connection with the rest of Gujarat. Therefore practically in all the agricultural commodities its markets give the lowest quotations.

As already pointed out the absence of warehousing facilities and the farmer's inability to wait are the main causes making him to lose a fairly good amount by selling immediately after the harvesting season. Moreover it is at times not advantageous to grow the export crops in such far distant areas as they have to incur very high transport charges that render the raising of these crops unprofitable.

Besides the prevalence of a variety of local and regional weights and measures leads to false weighments and much deception of the cultivator. Therefore to secure standardisation the Bombay Government have passed a law in 1935 which should serve as a guide and inspiration to all the Gujarat States.

The development of co-operative marketing has been very slow and it is confined to only Baroda and British Gujarat. Even in these areas its operations are confined to a limited number of crops, that too, within restricted areas. The main obstacle to progress in this field are lack of skilled technical advice and guidance, ignorance about market conditions and trends, want of ability to manage business, inadequate finance and lack of storage and transport facilities; and above all the money lender still continues to have a larger claim on the cultivator and his crops.

It should be realised that backwardness of transport adds

* Table No. 32 in the Appendix gives Prices of Staple Food-Grains for some of the Gujarat States during the year 1935-36.

† Railway Station is situated at a fair distance from the town proper in both these cases.

to the costs of marketing which in India are estimated to be about 20 per cent of the price even if the wholesale dealer is within a radius of 15 miles from the village. The mileage of roads per 100,000 of the population is 129 in Gujarat as against 2,500 in the U.S.A. Out of the total 10,000 miles of roads in Gujarat, hardly 3,000 miles or 30 per cent are motorable that too, in fair weather. The remaining 7000 miles are not motorable at all. They are more or less the cart-tracts.

Gujarat has, per square mile, a road mileage of .29 as against 2 in England and 4.4 in Japan. Even the position of the existing roads of Gujarat is far from being satisfactory. Village roads have not only not progressed, but have deteriorated with the increasing traffic of more crops, more people and more travel arising from security and general awakening. "There has thus accumulated a burden of arrears of overdue improvement which is sometimes staggering to contemplate. There are hundreds, probably thousands of large villages, at some distance from any roads supposedly maintained by the public authority, and many miles from any modern road and there is a general neglect of the link between village and the public road. The people in those villages are primary producers of crops. Every maund of exportable food-stuffs, cotton, etc, originates in the village and starts its journey to the market along the village or unmetalled district road, and the service which the people get from these roads is quite inadequate."*

About 40 to 75 per cent of the total area of the Districts of the Bombay Province are not served by roads and large parts of the districts are totally cut off from communication with the urban areas during the monsoon months. About 83.3 per cent of villages of Surat District are totally cut off from outside communications during the monsoon.† If this is the condition prevailing in British Gujarat—economically the highly developed part of Gujarat—the condition prevailing in the various small Gujarat States can just be imagined.

* Speech by Sir Kenneth Mitchell, Controller of Road Transport, Government of India; at the 8th Session of the Indian Roads Congress.

† Findings of the Bombay Economic and Industrial Survey Committee 1940.

So for securing better return for the cultivator's produce, increased transport facilities are absolutely necessary. It is because of the transport difficulties that growing of vegetables in Gujarat is confined to villages mostly within a narrow radius of 8 to 10 miles from the city. It is not paying to the cultivators to grow vegetables if they are more than 20 miles away from a big town. Growing of vegetables and garden produce is extensively carried on in the Chorasi Taluka of the Surat District only because most of the villages of this Taluka are within a radius of 10 miles from Surat. On the contrary in many villages of the Bardoli Taluka, cultivators make ghee because there is no local market for milk.

The position is equally unsatisfactory in respect of other means of transport. Gujarat has 1720 miles railways, out of which 90 per cent of the railway mileage—that is, 1469 miles railways are within British Gujarat and Baroda State territories. Therefore the remaining 50 per cent area of Gujarat (that is, all other Gujarat States) is ineffectively served by 200 miles of railway.

Besides, this small railway mileage is owned by eight different agencies and it is covered by different gauges. Of the total railway mileage $\frac{1}{3}$ rd distance is covered by the broad gauge, $\frac{1}{3}$ rd by the meter gauge and $\frac{1}{3}$ rd by the narrow gauge. Resultant rate manipulations, coupled with the overhead and terminal charges, increase the transport cost considerably in this province. The state of affairs is rendered more disappointing when we realise that in the absence of any planned development in spite of the dearth of railways and roads in Gujarat, there has ensued rail-road competition in British Gujarat.* In order to avoid such wasteful competition there is an urgent need for a co-ordinated transport system within this province.

Among the faster means of communication, steamships also play an important part along with the railways and automobiles. More so, as water transport is comparatively cheap and hence a very valuable means of transport. Gujarat is gifted with 200 miles of coast-line which is broken by the mouths of the numerous streams and rivers meeting the Gulf of Cambay. Its minor ports, Cambay, Broach and Surat, have played an historical role in the past in developing its commerce, trade and industries.

* For details vide Table No. 7 in the Appendix.

But they are now found useless for the big ocean-liners to anchor. Still they can play very important part in the development of the coastal trade and thus cater to the needs of Gujarat's hinterland. In this connection, several suggestions for the development and improvement of the ports of Cambay, Broach, Surat and Bulsar* have already been made by the Bombay Minor Ports Committee in 1939. But so far, all the roadsteads of Gujarat, viz. Sarod, Kavi, Tankara, Jambusar, Sajod, Hansot, Bhagwa, Maroli, Navsari, Matwad and Dandi are neglected. It is therefore essential to improve and increase the utility of these roadsteads. Once proper attention is paid to the development of the minor ports, it is very likely that these roadsteads will also begin to hum with life.

The internal trade of the province is many times greater than its foreign trade. From the point of view of agriculture, for every acre that is cultivated to supply the foreign market, there are eleven acres which provide for internal consumption. Besides, Gujarat is not self-sufficient in respect of food-production. If it exports cotton, oilseeds, etc. it at the same time imports wheat, rice, etc. Therefore only an efficient and coordinated transport system can well serve the interests of agriculture, trade and industries of this region and can guard its people against suffering in times of scarcity, famine, flood and such other calamities.

(ix) Land Revenue : Land Tenure and Tenancy

In Gujarāt the politicians as well as the economists have often criticised the growing incidence of land revenue charges upon the shoulders of the public. It goes without saying that it was this heavy incidence of land taxation which was the root cause of the Bardoli and Mansa Satyagraha movements during the early thirties of this century. The following figures give an idea about the per capita incidence of land revenue in some of Gujarat's prominent States.

Year	State	Total Land Revenue Rs.	Per capita incidence of Land Revenue Rs.
1935-36	Radhanpur	4,26,809	6.0
1938-39	Baroda (Gujarat)	106,25,000	4.7

(Table contd. on the Obverse)

* Vide ante; Chapter I (iii) Transport Facilities, a. Waterways.

1934-35	Rajpipla	9,30,973	4.5
1939	British		
	Gujarat	97,78,935	3.0
1937-38	Santrampur	1,79,461	2.1

It is risky to compare the conditions of the agriculturists in the various States merely on the basis of per capita incidence of the land revenue charges. This statement is only prepared to compare the conditions prevalent outside the province of Gujarat.

Per Capita incidence of Land Revenue*

	Rs.	as.
Bombay Presidency (including Sind) ..	2	3
Bengal	0	11
United Provinces	1	7
Madras	1	10

Looking to (i) the low per capita incidence of land revenue in other parts of India and (ii) the steadily increasing rural indebtedness and the progressive soil deterioration within Gujarat, it would be better if the Gujarat States earmark a part of their share in land revenue for purchasing manure and seeds and supply them to the agriculturists free of charge. This might improve their conditions to a certain extent but it will not solve the problem of the permanent improvement of land or its non-economic holdings.

Thus the land system itself is defective. The evolution of the various political divisions of Gujarat has made the system of land tenure a somewhat novel one. In former times the kings used to give lands as gifts to their sons and relatives and also to their officers and leading citizens for their meritorious deeds. This gave rise to a new class of landlords usually called the Bhayats of the State. Hence we may broadly divide the land into:—

(i) Darbari or Ryotwari, (ii) Bhayati, Inami, Jivaidari, or Pattavati, and (iii) Alienated or Dharmada.

The Gujarat States' Administration Reports deal only with the Darbari land and similarly the Bombay Land Revenue Administration Report deals with the Rayotwari land in which peasants are proprietors of land subject to the regular payment of land tax to the Government. They can alienate their land

* Dr. Pillai: *Economic Conditions in India*.

by mortgage, sale, or gift; and they are assured permanency of tenure only so long as they pay their dues regularly to the State. Hence under the present system of tenure the cultivator have not got any permanent interest in the land.

Under the circumstances about 23 per cent of the total cultivated land in the Baroda State has passed into the hands of non-cultivating 'Khatedars' and so also in British Gujarat the number of non-agriculturists in possession of the cultivable land is steadily increasing.

This is a serious drawback in the agricultural economy of the State. All this land belonging to the non-agriculturists or 'Khatedars' is cultivated by the cultivators mostly on a fixed rental and in some cases on the share system. The share varies from one-third to half of the gross produce. Most of the tenancy contracts are for a short term, from 1 year to 3 years, but in most of the cases the ryot is allowed to continue from year to year.

Under the temporary rental system land cannot be cultivated properly as no costly improvements can be made by the tenants and the owners are seldom interested in the improvement of lands. There is thus a great loss to the province from these short-term leases as the land under this system is practically neglected.

Realising full well the gravity of the situation, the Bombay Government passed the Bombay Small Holders' Relief Act in 1938 which is the first Act to give real protection to the ryots. Under this Act, the landlord was prevented from evicting a tenant who was in uninterrupted possession of agricultural land from 1st January 1932, provided the tenant had paid the landlord rent for one previous year. The concessions in the land revenue due to suspension or remission were also to be proportionately passed on to the tenant by way of reduction in rent.

But of greater importance in this connection is the Bombay Tenancy Act of 1939 which is put into force in a few selected areas in the province. This Act creates a class of protected tenants* and confers upon them the following benefits:—

(i) Reasonable rent to be determined by the Mamlatdar in accordance with a specified procedure and certain definite princi-

* A 'protected tenant' is defined as one who has land continuously for a period of six years immediately preceding 1st January, 1938, and has cultivated it personally. Tenants evicted after 1st April 1937 were also to be deemed protected tenants on certain conditions.

ples, unless it was settled by agreement between the landlord and the protected tenant or was determined by local usage.

(ii) Freedom from eviction except where the protected tenant (a) fails to pay arrears of rent within four months of the enforcement of the Act, or (b) fails to pay rent in any year within 15 days of the payment of land revenue by the landlord, or (c) causes injury to the land, or (d) sub-lets it and does not cultivate it personally, or (e) uses it for non-agricultural purposes. It is, however, provided that the landlord can terminate the tenancy if he desires to cultivate the land personally.

(iii) Compensation for improvements on the land in case of eviction.

(iv) Continuance of tenancy after death on the same terms and conditions.

(v) Benefit of partial or total remission of land revenue, by way of proportionate reductions in rent.

(vi) Freedom from 'veth'* or illegal cesses.

This Act is, on the whole, a bold measure designed to confer substantial rights on the tenantry. It attempts at the same time to safeguard the legitimate interests of landlords. This Act should therefore serve as a guide and a source of inspiration to the Gujarat States.

This Act is however criticised on various grounds. The legal sanction given to rents determined by 'local usage' has been criticised on the ground that the criterion is too vague and the provision may in practice work to the detriment of the tenant. Moreover, since the continuous occupation of land for a certain number of years is a condition precedent to the accrual of tenancy rights, there is a possibility of the landlord managing to shift the tenants to different holdings or of removing them altogether before they become entitled to the permanent status. Even the benefits granted under this legislation are further limited in scope because of the enforcement of the Act only in a few selected areas of the province.

In this respect, the example set by the C. P. legislation of granting this protection irrespective of the period of tenancy would have been worthy of emulation.

Though the tenancy legislation aims at granting the benefits of the three F's—fixity of tenure, fair rents and free transfer—

* forced labour.

to tenants, its benefit does not reach the actual cultivator, who is often a mere share-cropper. On the other hand, radical legislation means dispossessing the old vested interests and this is a very difficult matter to achieve. It is therefore necessary to give better legal status to the actual cultivator and to control the transfer of lands to sub-tenants by the functionless parasitic landlords. At the same time, it is no use conferring tenancy rights upon the small holders since their cultivation cannot bring adequate returns to them and they cannot hold lands for long.

Thus tenancy legislation is only a palliative and not a cure. The agrarian problem is too intricate to be solved by tenancy legislation alone. What is therefore needed is an overhauling of the whole system of land tenures, tenancies and taxation and the absorption of the large surplus of population on the soil into suitable rural and urban industries.

CHAPTER III

INDUSTRIES CONNECTED WITH AGRICULTURE : FOOD AND DAIRY INDUSTRIES

(A) FOOD INDUSTRIES—FLOUR GRINDING

According to the Census returns the food industries of Gujarat engaged 5,803 persons in 1931. Out of this number 3,125 persons were engaged in rice grinding, paddy husking and flour grinding, 300 in grain parching, 1,440 in sweetmeat and and condiments preparing, 292 in sugar, mollasses and 'gur' making, and 646 in other food industries. It should also be noted that out of the total 5,803 persons engaged in these industries 2,407 were females.

In the by-gone days rice grinding, paddy husking and grain parching were the important rural handicrafts and they constituted a very important subsidiary occupation to the cultivators. But the rise and growth of rice and pulse polishing concerns in Gujarat has now resulted in the elimination of these handicrafts and most of the paddy husking and pulse making is now done by machines.

Among food industries, the more important industry is flour grinding. Even today it is both a rural as well as an urban industry. In the past it existed as a handicraft and it was a principal source of income to the women of the poor and the lower middle classes. Those women who owing to the prevalence of the 'purdah' system could not work in the open field found a very convenient source of employment in this industry. But now flour mills have usurped this important means of their livelihood in the urban areas. Practically every small town of Gujarat has a flour mill. There are in all more than 300* flour mills in Gujarat and they

* From our enquiry we have gathered the following information about the number of flour mills existing at the various centres of Gujarat. British Gujarat :—Sarkhej 2, Anand 6, Kapadvanj 3, Mehmedabad 3, Karamsad 3, Borsad 3, Umreth 7, Bhalej 2, Vadtal 2, Uttarsanda 3, Broach 7, Jambusar 4, Ankleshwar 4, Amod 6, Hansot 3, Kolak 2, Godhra 20, Jhalod 4, Limbdi 1, Dahod 12, Mandvi 3, Rander 4, Bardoli 4, Valod 7, Udwada 2, Vapi 6, Pardi 4, Jalalpore Mahal 15, Bulsar 14, Chikhli 4. Baroda State:—Mehsana 3, Patan 5, Visnagar 3, Sidhpur 1, Dabhoi 5, Manund Road 2, Vyara 2, Savli 1, Navsari 3, Kamrej 2, Songadh 1, Gandevis 1. Other Gujarat States:—Lunawada 1, Rajpipla 5, Radhanpur 3, Palanpur 13, Idar 5, Santrampur 2.

show a tendency to fast multiply their number. Most of these flour mills are proprietary concerns and unregistered factories. Some of them are run by electricity and the rest by oil. With the help of machinery they are able to grind flour at a very cheap rate. Hence flour mills have also made their appearance in some of the big villages of Gujarat. Before the war the hand-grinders charged 8 as. for grinding one maund grain while the flour mills charged only 3 as. for the same quantity. These rates have however increased after the out-break of World War II. The hand-grinders charge Rs. 2 and the flour mills 8 as. per maund.

Marketing Conditions : From among the flour mills there are 5 Roller Flour Mills* in Gujarat employing in all 238 persons. But these roller flour mills were feeling severe competition from the roller flour mills of Bhatinda, Ludhiana Ujjain, Indore, etc. Because of this competition the roller flour mills of Godhra with a capacity of grinding 280 bags of gram per day was closed down. Half of the production of the three roller flour mills of Ahmedabad was consumed locally. But the other half found markets in the big towns of Gujarat like Baroda, Broach, Surat, Bulsar, etc. where wagons loaded with wheat flour and gram flour arrived every month from Bhatinda, Ujjain, etc. The above-mentioned roller mills from the Indian States successfully competed with Gujarat mills in the Bombay as well as Gujarat markets. It was so, because wheat and gram were available at comparatively cheaper rates and labour was also cheap in the Northern India States. Besides, they obtained long distance concession in railway freights from the B. B. & C. I. Railway.

B. B. & C. I. Railway Freight Rates

	Dahod to	Ujjain to	Bhatinda to
	Bombay	Bombay	Bombay
Distance	330 Miles	425 Miles	900 Miles
Rate charged per maund	Re. 0-10-5	Re. 0-10-5	Re. 0-14-0

As Dahod's Govind Roller Flour Mills Co. Ltd. had to purchase wheat and gram at comparatively higher rates and export flour to Bombay, there was every likelihood for it to

* Roller Flour Mills at Ahmedabad—3; in Broach and Panch Mahals—2.

close down. But World War II gave temporary relief and with Gujarat's other roller mills it also obtained Government contracts for supplying flour to Military Depots.

Future: If therefore the long distance railway concession remains in favour of Northern India mills, roller flour mills will have a great future either (i) in the Punjab, where the raw materials (wheat and gram) as well as labour are comparatively cheap; or (ii) at Karachi, from where flour can be exported via sea at cheap rates to Bombay.

Paddy Husking and Pulse Making:

Paddy Husking

Rice does not play any important part among the cultivation of crops in Gujarat. Hence we find a comparatively small number of rice mills in Gujarat*—only about 125; and more than half of these small unregistered factories have combined plants of flour and rice mills.

The number of persons engaged in rice grinding, husking and flour grinding was only 3,125 in 1931. But before the introduction of machinery these food industries must have engaged a comparatively larger number. This number is bound to decline still more with the growing number of flour mills, rice mills and the introduction of rice hullers in this region.

Pulse Making

Pulse Making is also an important rural handicraft of Gujarat. Because of its 'tuwer' crop the Golas of Gujarat used to keep 'Dalkharis' (pulse-making handmills) in their houses and as soon as the monsoon was over they engaged themselves in pulse making.

However, the number of 'dalkhari' owners is fast declining and according to the 1931 census figures the total number of persons engaged in grain parching in Gujarat was hardly 300.

* Number of rice mills at the various centres of Gujarat is given below: Ahmedabad Rice and Pulse Mills 1, Karamsad (F & R) 3, Umreth (F & R) 7, Anand (F & R) 2, Kapadvanj (F & R) 3, Amod (F & R) 1, Ankleshwar 2, Hansot (F & R) 3, Godhra (F & R) 2, Jhalod (F & R) 4, Surat 4, Bardoli (F & R) 4, Valod 6, Kolak (F & R) 2, Vapi (F & R) 5, Pardi (F & R) 4, Jalalpore Mahal 9, Bulsar 10 plus (F & R) 4, Chikhli (F, O & R) 4, Billimora 4, Kamrej 2, Vyara 1, Navsari 1, Vaghodia 3, Jarad 1, Dabhoi (F & R) 1, Bansda State 2, Lunawada (F & R) 1, Santrampur (F & R) 2, Rajpipla (F & R) 23. (N.B.: F=Flour Mill; R=Rice Mill; O=Oil Mill; F & R=Flour and Rice Mills' combined plants; F, O & R=Flour, Oil and Rice Mills' combined plants.)

Except Jambusar, Degam and Anand there is hardly any other centre worth mentioning in Gujarat where pulse making now persists on handicraft basis. With the introduction of machinery in this industry, the number of 'dalkhari' owners is fast declining,* for machine-made 'dal' is cheaper than handmade 'dal'.

Future: There are in Gujarat more than 300 pulse making and pulse polishing mill†. These are very small unregistered factories and with the establishment of a few more pulse making mills, 'dalkhari' handicraft will practically die out.‡

Oil Industry

Oil is one of the important items of food of the people of this region. Sesamum oil is preferred by them to ground-nut oil. Hence in Gujarat 'ghanis' generally crush sesamum or ground-nuts. On Surat side they also engage themselves in crushing 'kharsani', while in Panch Mahals, because of the availability of mahura trees, they crush mahura seeds (doli). Only a few 'ghanis' crush castor seeds, as this crop is raised on a very limited area in this province.

Upto the beginning of the 20th century oil extracting persisted on handicraft basis and practically all the 'ghanchis' (oil-crushers) of Gujarat used to own bullock driven 'ghanis' or oil extracting equipments. But oil mills came to be established first in the big cities of India like Bombay and Ahmedabad and later on in the small towns of Gujarat. As

*In our survey we were informed that there were 25 'dalkhari' owners at Ankleshwar, but at present all of them are rendered unemployed because of the establishment of a pulse mill. There were 10 'dalkhari' owners at Degam, but their number began to decline from 1922 onwards and today there are only 3 dalkhari owners. Jambusar is however holding its own and 35 families are engaged in splitting 'dal' by hand. This is because it is in the interior and as yet no pulse making concern is established at this centre.

† Ahmedabad (rice and pulse mills) 1, Anand 2, Ankleshwar 1, Umreth 2, Dahod 3, Surat 5, Bulsar 9, Pardi 1, Amalsad 2, Sidhpur (oil and pulse mills) 1.

‡ It is reported that about 1000 Golas were engaged in the dalkhari handicraft in Gujarat. Golas of Surat, Kaira, Broach and Panch Mahals were very happy in those days. But (i) imports of machine-made 'dal' and later on (ii) the introduction of this plant at the various centres of Gujarat deprived them of this important source of employment and most of them are now selling 'pan-bidis' or serving in hotels.

oilseeds form one of the principal agricultural crops of Gujarat, the total number of vegetable oil workers in Gujarat was 9,439 in 1931. But their number must have been much greater when this industry was having its heyday on handicraft basis.

Present important oil crushing centres of Gujarat are Surat, Patan, Godhra, Baroda, Modasa, Idar, Dahod, Palanpur Santrampur and Umreth. Among these, the leading centre of Gujarat is Surat where about 150 ghanis are working. Surat ghani owners themselves (i) purchase oilseeds, (ii) crush them, and (iii) run shops to sell oil to the consumers. Their investment in oilseeds comes to Rs. 40,000 to 50,000 per year. They purchase sesamium as well as ground-nut or 'kharsani' in lots of 15 to 20 maunds and before the out-break of World War II usually they invested at a time about Rs. 200 in oilseeds. Looking to their brother 'ghanchis' in the villages of Gujarat, their lot is comparatively better. During the pre-war days they earned Rs. 25-30 per month; ghanchis in other important centres of Gujarat like Bulsar, Modasa, Godhra, etc. earned Rs. 15 to 20 per month; while the 'ghanchis' in small villages hardly earned Rs. 7 to 12. But with the rise in commodity prices, sesamum oil is now available at Rs. 24 per maund of 40 ratals instead of at Rs. 9 as in pre-war days, and ground-nut oil at Rs. 17-8 instead of Rs. 5. The cost of living and the labour charges have also risen. Their present earning at Surat has therefore increased to Rs. 80 to 90 per month, Rs. 60 to 70 in other important centres and Rs. 25 to 30 in Gujarat's small villages.

Marketing Conditions: According to the ghani owners of Surat before World War I ground-nut oil tins used to be imported in Gujarat from Madras and other centres. But as transportation, packing, etc. took time, this oil used to deteriorate in taste before it reached the Gujarat consumer. Realising the difficulties in selling this imported oil the entrepreneurs of Gujarat began to establish oil mills at the various centres. They began to crush ground-nuts and with this fresh oil, they mixed sesamum oil and passed on this mixed oil as pure sesamum oil to the consumers. The price of sesamum oil was Rs. 12 per Bengali maund and that of ground-nut oil Rs. 7-8 in 1938. The difference in the price being substantial, they earned more by their malpractice. This their trade secret was ultimately found out by the oil crushing ghani owners and

they also began to resort to the same malpractice. Even today this malpractice continues in the oil trade.

Scope: The machine has always an advantage over the hand. Mill oil is therefore sold at 8 to 15 as.' difference per maund. Hence the oil crushing ghanis are simply marking time for their extinction. In villages remote from railways, this handicraft is afforded some protection by its geographical location. It is therefore clear that the moment swifter means of communications link up rural areas with the outside world, this handicraft will lose a great deal of its importance.* Before the out-break of World War II 'ghanchis' in Gujarat's small villages did not find sufficient market for their goods and during the monsoon they attended the field. For the majority of ghanchis in villages some such side occupation had become a necessity.

Bakeries

In every big town of Gujarat we usually find two or three small bakeries. Their number swells in the case of big towns or cities. Hence Ahmedabad, Baroda and Surat top the list of the centres which claim greater number of bakeries.

Organisation: Most of these bakeries are proprietary concerns, some of them partnership concerns and only a few are registered partnership concerns. The Muslims happen to be the pioneers in this industry and even today most the bakeries in Gujarat are owned by them. Most of the bakeries make bread or 'double roti' and the number of confectioneries making biscuits, cakes and 'nankhatai' is comparatively very small. There are hardly 75 confectioneries† within the province.

* Decline of oil crushing ghanis can be easily gauged from the following information given by the 'ghani' owners of the various centres of Gujarat.

Centre	Number of ghanis in 1922-23	Number of ghanis at present	Centre	Number of ghanis in 1922-23	Number of ghanis at present
Surat	225	150	Cambay	60	17
Bulsar	60	14	Himatnagar	20	3
Vyara	12	1	Radhanpur	50	5
Santrampur	40	30	Palanpur	70	30
Rajpipla	40	9	Modasa	100	50

† There are 10 confectioneries at Surat, 10 at Ahmedabad, 9 at Broach, 7 at Baroda, 6 at Bulsar and 2 at Udwada.

(Contd. on next page.).

Raw Materials : Raw Materials required by the bakeries are finest quality wheat flour (i. e. 'maida'), sugar, baking powder, amonia essences, hops, eggs, vegetable ghee, ground-nut oil, butter and salt. These materials are purchased from the local market.

Equipment: The equipment required by these concerns is not at all costly. They require pans, bread pans, tables, knives and an oven. All these articles are made within the province and they are available in all the big towns.

Financial Needs : Before the out-break of World War II, with an investment of Rs. 250 to 275 in equipment and a total investment of Rs. 1000 in the industry, the owner of a bakery earned Rs. 60 to 70 per month. As regards confectioneries, with an investment of Rs. 2000 the proprietor earned Rs. 100 to 125 per month. However, their earning in both the above cases included (i) the interest on their investment, plus their (ii) labour, (iii) supervision and (iv) management charges.

It is thus clear that the problem of finance does not confront the owners of small and medium sized bakeries. They invest their own money in their undertaking, as the block as well as the total capital demand of the industry is not so great. Besides as the raw materials are available from the local market, they get adequate credit facilities. It is only in the big cities like Ahmedabad, Baroda and Surat that it is necessary for the owners of big bakeries to fit up show-rooms in order to attract customers. It being so such big bakeries are mostly partnership concerns.

In the items of expenditure cost of raw materials especially flour and fuel play an important role, while other items of expenditure in the order of their merit are (i) wages, (ii) extra

Process : For making bread the following process is resorted to :— (i) doughing, (ii) kneading, (iii) fermenting, (iv) dividing (cutting the loaf into pieces), (v) rolling (i.e. shaping), (vi) fermenting, (vii) baking and (viii) finishing.

For making biscuits the process differs a great deal. Right from the beginning to the finish the following procedure is adopted :—(i) mixing, (ii) stirring, (iii) rolling (i.e. cutting), (iv) panning and (v) baking. Moreover, biscuits making requires special biscuit cutters. The rainy season is not quite suitable for certain processes of bread and cake manufacturing. But as it is not possible to stock the goods for months together such difficulties are overcome by extra care and precaution.

labour charges like feeding the labourers which is customary, (iii) shop rent, (iv) the standing expenditure of baskets and a bicycle for the home delivery of goods, and (v) municipal tax.

Labour: Generally every bakery owner knows the art of baking and he personally supervises this work. In small bakeries usually the owner himself is the baker, whereas in an average medium sized bakery the owner employs one artisan* and also two to four assistants. In a well established big bakery an expert worker is appointed for each product.

The hours of work vary according to the nature of the process. Usually the employees of a bakery have to work for 8 to 9 hours a day. As the workers have to be particular about the timings of various processes, they are provided free boarding at the place of work. They are paid monthly wages, but their wages vary according to the nature of work they perform. Usually an expert artisan is paid Rs. 35 to 40 and an assistant Rs. 20 to 25 per month. If the artisan manages all the work of a bakery he gets Rs. 50 to 60 per month. The workers who manufacture cakes are paid more. During busy seasons like Diwali, Christmas, etc. they have to work for longer hours for which they draw additional wages.

Marketing: The main market for bakery products is local and to a certain extent provincial. Breads are sold in dozens and biscuits in lbs. In big cities like Ahmedabad, Baroda and Surat there is often competition among the local manufacturers. This can be easily avoided by establishing their Associations. After the out-break of World War II, on account of the difficulties of securing materials, such Associations have been formed with a view to making representations to the Government for an adequate supply of raw materials. But in order to restrict internal competition it is desirable to form a syndicate of all Gujarat bakeries.

Scope: At present Gujarat badly needs a few big bakeries to manufacture high class biscuits. In their absence better quality biscuits are imported within this province from other parts of the country and also from foreign countries. The main handicaps which have retarded the development of this industry on scientific basis are : (i) scarcity of efficient bakeries and (ii) poverty and illiteracy of the proprietors of these

*"Karigar".

concerns. Under the circumstances a syndicate of the bakery owners should be established which should not only formulate rules and regulations for strict observance by the bakery owners, but should also make it obligatory for them to manufacture standard biscuits which can compare well with foreign biscuits as regards their (i) quality, (ii) taste and (iii) finish.

There is also an urgent need for a strict watch and minute inspection of the ingredients and stuff used by biscuit and sweetmeat makers. The food stuffs manufactured by them affect the public health. Hence there should be proper State inspection of all the ingredients used by them. The Government Medical Inspectors should inspect them every now and then by surprise visits.

Gur Making

On account of more rainfall the agriculturists cultivate sugar-cane crop in South Gujarat. But gur making or sugar making is not a very prominent industry of Gujarat. The census figures show that only 292 persons were engaged in this industry in 1931. The number of persons engaged in gur making must have been comparatively large in the past, when it is realised that now power crushers are increasingly used in gur making. Moreover, inferior quality gur from other parts of India has also made heavy inroads in Gujarat markets and this has adversely affected the price of better quality Gujarat gur, with the result that there is no added impetus left for the peasants to take to sugar-cane cultivation. Gujarat farmers are not so enthusiastic about increasing the acreage for sugar-cane cultivation because in case of rain failure, there is lack of adequate irrigation projects in the province.

Production: At present about 2500* acres land is under the cultivation of sugar-cane in Gujarat. Per acre yield of gur varies from 30 to 50 Bengali maunds. Hence Gujarat's total annual production of gur can easily be said to be of 80,000 to 1,00,000 Bengali maunds.

Important Centres: Important gur making centres or Gujarat are Gandevi, Billimora, Bulsar, Amalsad, Atgam,

* 600 acres in Pardi Taluka, 600 acres in Bulsar Taluka, 300 acres in Chikhli Mahal, 500 acres in Jalalpure Taluka and 500 acres in the rest of Gujarat.

This estimate we have obtained by personal inquiries among enlightened sugar-cane cultivators of the various areas.

Muli, Vaghchhippa and Vyara. To its credit it should be pointed out that Gujarat's gur is considered to be the best quality gur ('Tarabado gol') and in this connection Gandevi merchants have still preserved their trade reputation.

Hand vs. Machine: The extraction capacity of the crushers by power varies from 65 per cent to 70 per cent and that of the non-power crusher is about 62 per cent. Naturally this important subsidiary occupation of South Gujarat cultivators is suffering elimination at the hands of the factory.

Subsidiary Industry : Because of the existence of gur making industry, sugar making industry has also come into existence in this province, but on a very small scale—in few unregistered small factories. They make sugar out of gur and sell it in the local markets. These are seasonal factories which work hardly for more than four months in a year. There is still a very limited number and they are found in the following centres:—Ahmedabad 7, Ankleshwar 6, Surat 3; Bulsar 1, Nadiad 2, Amalsad 1, Viramgam 1, Gandevi 1. The last one, at Gandevi, is a sugar works employing 71 persons is the biggest of them.

Scope: Gur making industry is rightly known as 'vadaliyo udyog', that is the industry depending on cloud (i.e. rain). If per acre yield of crop is good and the output of gur in other parts of India is less, the peasants earn some profit; otherwise this industry hardly yields them a good margin. But this is an industry which definitely has a fair scope for development in South Gujarat. What is needed in this connection is an active State interest and scientific investigations to explore the possibilities for its further growth.

At present the sugar-cane cultivation is carried out in a haphazard manner, the farmers usually devoting only a small portion of their lands to it. What is therefore needed is the plantation of sugar-cane over a much larger area in order to make this province self-sufficient for its requirements of gur. Unless this industry is put on a sound and surer footing, it is likely to suffer a great deal in future, for it is mainly in the hands of poor and illiterate farmers.

Fishing

So far fishing is neglected on the Gujarat coast and it remains in the hands of Machhis and Kharvas who are illiterate and follow their age-old methods. According to the 1931 census,

8,030 workers were engaged in fishing and pearling in Gujarat. As pearling is an insignificant industry, all these workers may be counted as doing fishing and allied work. However from among these workers 3,447 were females who carried fish to the local market and sold it. The important areas where this industry is carried on together with the number of workers engaged in it were as follows:

Surat District	1,465
Navsari District	773
Broach District	489

Important Centres: As Gujarat is favoured by broken coast-line, every river mouth affords a good creek and a roadstead where fishermen dwell and carry on fishing. Main centres where fishing is carried on are Cambay, Sarod, Kavi, Tankara, Jambusar, Kolak, Sajod, Hansot, Olpad, Bhagwa, Maroli, Jalalpure, Navsari, Bulsar, Matwad and Dandi.

Organisation and Equipment: Fishing is mainly a seasonal industry in Gujarat. Though there are many fishing centers on the Gujarat coast, they are smaller in size and less important when compared to those of the other parts of India.

Besides, this industry is mainly in the hands of independent fishermen. They usually prepare nets for themselves from locally purchased jute thread or hemp which used to cost Rs. 4 to 6 per maund in pre-war days, but now costs Rs. 28 to 30. On account of rise in the price of yarn and iron hooks and nails the cost of a net now comes to Rs. 80 to 100 instead of Rs 15 to 20 as in pre-war days.

In some centres fishermen work in co-operation. Thus fishing at Kolak is mostly done on a co-operative basis. There are 29 fishing boats at this centre and generally 10 persons work on a boat. The boats are somewhat costly. They cost Rs. 1,000 each in 1938, but at present even if second-hand boats are available they cost Rs. 2,000 while brand new Rs. 6,000 each. After the day's toil the catch* is equally distributed among the

* Main catch on the Gujarat coast is of the following fisheries : 1 Shark and its relative, 2 Bombay Duck, 3 Pomph et, 4 Hilsa with its relative Clupeatoli and 5 the Jewfish. But the shark fishery in the Gulf of Cambay is of inferior quality. The fishermen catch among big fish : 'palva', 'chaksi', 'nar', 'modar', 'gol', 'bumla', 'dadha' and among small fish : 'sondhiya', 'jingi', 'fansti', 'jipti', 'sevar', 'gari', 'dhongri', 'cheval', 'doliya', etc. Besides sweet water fish or the river fish are available on Broach and Bulsar coast. Their chief varieties are : 'boi', 'jinga', 'padhan', 'mal', 'varsa', 'roi', 'dakva', 'khadvari', 'modhiya', 'maru', 'sfngara' and 'kachla'.

crew and the owner of the boat gets an additional share. In some centres like Olpad and Jalapore at times 5 or 6 fishermen work on a boat on the above basis, while the Bulsar Koli works by himself. His small boat used to cost him Rs. 10 in 1938, but it now costs him Rs. 70 to 80.

Marketing and Remuneration: The fish thus gathered is sold by their females in the local fish market. At many places fish is bartered for grain.

The nature of the catch varies according to the season. From October to December the catches of bombills (Bombay Duck) are heaviest. From February to May, Ghol (*Sciaena Sina* and *S. diacanthus*) and Dara (*Polynemus indicus*) are predominant among the fish caught. The fish caught is partly cured and partly sold in fresh condition. Some part of the catch is sent to near-by areas. The cured fish finds a ready sale at Nasik, Broach and Ahmedabad.

Ghols were sold at Rs. 12 to Rs. 14 per 20 in 1938 but now they are sold at Rs. 50 to Rs. 60 and Dara was sold at Rs. 18 to Rs. 20 in 1938, but now it is sold at Rs. 80 to Rs. 100. After the outbreak of war there is a very heavy demand for fish because of large military recruitments.

The average income of the fishermen in Gujarat was Rs. 10 in per-war days, but now it has risen to Rs. 70. The fishermen at Kolak used to earn Rs. 15 and at Bulsar Rs. 3 per month during the fishing season in per-war days, but now their income is increased and they earn at these centres about Rs. 90 and Rs. 18 respectively.

Main Handicaps: All these fishermen are addicted to drinks and are indebted to the middlemen from whom they borrow money and to whom they sell their catch. The middlemen's position in this trade is therefore enviable. He hardly gives 50 per cent of the value of the catch to fishermen.

(1) There is therefore a necessity for setting up an efficient trade organisation for this trade.

(2) Besides, in order to relieve the fishermen from the mill-stone of indebtedness, the Bombay Government should take steps for opening up Fishermen's Co-operative Banks at suitable centres.

3. Everywhere there is a useless wastage of marine wealth. About two-thirds of every catch is immature and of

sizes far below what any country with organised fishery regulations would permit to be caught and offered for sale. They neither bring good remuneration to the fishermen nor give satisfaction to the consuming public. Under the circumstances on the one hand there exists scarcity of good quality fish in the market and on the other hand there is wastage of the poor quality immature little fish which are brought for sale to the market. This lamentable state of affairs can be remedied by prescribing a minimum size of mesh in all nets, sufficiently large to permit the escape of the majority of immature fish, particularly mullets.*

4. There is also a bitter complaint about heavy charges which the fishermen pay for salt used in fish curing. Although the Government supply salt at concession rate, the whole supply is monopolised by a few middlemen who charge double the rate. This grievance can be remedied if the Government open up fish curing yards at the various fishing centres of Gujarat.

Scope : The Surat and Broach districts have a good coast-line and a substantial section of the population is reported to be non-vegetarian in these districts. Conditions are thus favourable for the improvement of fishing industry within these districts. If properly developed (i) fish canning, (ii) fish-meal, (iii) fish fertiliser and (iv) fish oil might become paying propositions. Thus fishing development by the introduction of more auxiliary industries and trade will confer upon the people benefits of increased wealth and occupations.

Poultry Farming

Poultry farming is not a very popular industry in Gujarat as the majority of the population does not take eggs and meat. However, it persists on a limited scale especially in South Gujarat because of a comparatively larger Muslim population and of Parsis in the Surat and Broach districts.

Important Centres : Important poultry farming centres of Gujarat are Udwarda, Navasari, Jalalpore, Surat and Ankleshwar.

Organisation, Marketing, etc.: Poultry farming is carried

*James Hornell: Report on the Marine Fisheries of the Baroda State, 1930.

on at the above centres on a small scale and on a proprietary basis by the poor and illiterate farmers.

Eggs were sold in the local market at 6 as. a dozen in 1938, but after the out-break of World War II their price has risen to Re. 1-8 or even to Rs. 2 per dozen. The birds were sold at Rs. 6 per dozen in 1938, but they now cost Rs. 20. The average earning of an agriculturist from poultry farming was estimated at Rs. 5 per month in 1938, but now he earns about Rs. 30.

Scope : Eggs taking and hence the demand for eggs has increased during the very recent period. Eggs are also recommended by the medical men as a good substitute for milk. As such this industry affords good scope for development as a subsidiary occupation to Gujarat farmers. But at present they are carrying out poultry farming in a very haphazard manner. They keep poultry in their farm which roam everywhere in the field and do some harm to their cultivation. It is so because these illiterate agriculturists do not realise the value of special yards.

1. The Bombay Government should therefore establish a Research Institute and a Demonstration Yard either at Surat or at Broach where constant experiments to improve the poultry breed should be carried out.

2. This Institute should also take initiative in the directions of (a) grading the eggs, (b) organising the egg market and (c) egg trade.

3. The Gujarat farmers do not make use of artificial incubators.* It is therefore desirable to demonstrate to them the benefits of artificial incubators which yield better results. If this industry is put on a scientific basis the remuneration of the farmers from their existing poultry farms will show an appreciable rise.

B. Dairy Industries:

Ghee Industry

Ghee is the staple food of the masses in Gujarat. There are therefore many centres known for ghee making in this region. The following table gives an idea of such well-

* It takes 21 days for hens' eggs and 28 days for ducks' eggs for incubation in the artificial incubators.

known ghee making centres :-

State or District

Well known centres of
Ghee Industry

A. British Gujarat:

Kaira District:-

(1) Mehmedabad, (2) Mahudha, (3) Kapadwanj, (4) Nadiad, (5) Kathlal and (6) Borsad.

B. Baroda State:-

(7) Kadi, (8) Dhinoj, (9) Visnagar, (10) Kheralu and (11) Bodeli

C. Rest of Gujarat:

(i) Balasinor State:-

(12) Jetholi, (13) Balasinor,

(ii) Radhanpur State:-

(14) Munjpur, (15) Vadhiyar,

(iii) Idar State:-

(16) Khed Brahma and

(iv) Santrampur State:-

(17) Santrampur.

In British Gujarat the most important centre of the ghee trade is Mehmedabad. During the pre-war days annually about Rs. 2 lakhs worth ghee* was exported from this place to Surat, Broach and Baroda.

Present Condition: After the out-break of World War II there was a great demand for cattle from slaughter houses. It was so because the military recruitment that took place during this period and also the influx of foreign soldiers made a heavy demand for mutton and beef upon the country's existing cattle resources. The heavy cattle slaughter during this period resulted in scarcity of the available milch cattle. Besides, on account of the rise in commodity prices, prices of fodder, oil cake, 'chini', 'guwar' etc. increased four to five times the pre-war rates. There was also a heavy demand for ghee from military quarters during this period. All these factors have therefore combined together in creating a scarcity of the total output of ghee within the province and in raising the price of ghee from Rs. 25 per maund to Rs. 90.

Under the circumstances malpractices and adulteration have shown an increasingly upward trend in the trade of ghee vegetable ghee is now available at Rs. 22 per maund and pure ghee at Rs. 90 to 100. Vegetable ghee is odourless and tasteless;

* Ghee was sold at Rs. 25 per maund in 1938 while now it is sold at Rs. 90. Therefore at the present price level Rs. 8 lakhs worth ghee was exported from this centre.

therefore when it is mixed with pure ghee it immediately catches its smell and taste. Hence mixing of vegetable ghee with pure ghee is increasingly resorted to by ghee merchants.

It is only in this industry that owing to malpractices and adulteration, principles of economics cannot function properly. For by selling the raw material (milk) at Rs. 35 per maund the cattle breeders make profit while (for want of market for milk) by selling finished product (ghee) at Rs. 90 per maund they lose. Mixed ghee is passed on by the traders as pure ghee and it is sold at Rs. 70 to Rs. 80 per maund* and in order to compete with this market ghee the cattle breeders themselves are obliged to mix vegetable ghee with their genuine ghee.

State Policy : The Government of India have evolved a scheme for grading and marketing of Agricultural Produce of the Government of India, under the Agricultural Produce (Grading and Marking Ghee) Rules, 1938†. These rules have subsequently been adopted by the Baroda State, and State guaranteed tins of 40 lbs., 20 lbs., 10 lbs., 7 lbs., 3½ lbs., and of smaller size are filled in by the merchants and the quality of ghee is graded and marked "Special", "Buffalo", "Cow" and "General" according to the four grades fixed by the Agricultural Marketing Adviser to the Government of India. The Baroda State has also appointed Special Officers for this purpose for the various Divisions of the State. It being so, centres like Visnagar, Dhinoj and Kheralu are fast gaining importance and building up their trade reputation.

On the other hand the various centres of British Gujarat are fast losing their importance, for the Bombay Government have so far failed to adopt any bold measure in this direction. On the contrary the Bombay Municipality has favoured the vegetable ghee producers by allowing them to mix 10 per cent vegetable ghee with pure ghee. Once this allowance is made it requires a laborious and expensive machinery to check the extent of adulteration.

Future: The price of pure ghee has risen so high that it has practically become out of reach of even the middle class people. Besides, there are no signs that in the near future the

* 40 Ratala.

Published under the Government of India Notification No. F 51 (45) 38-1, dated the 27th October, 1938.

price will be reduced. For on the one hand there is a great demand for all the dairy products and on the other hand there is the scarcity of milch cattle and also of cattle fodder. Realising this full well many people have begun to use pure vegetable ghee* instead of mixed ghee. The total consumption of genuine ghee has therefore gone down and with the increase in the use of vegetable ghee it is likely to show further decline. This might affect (a) the public health and also (b) the incentive to cattle rearing. For in the rural area where there is no market for milk, ghee is the only important dairy industry of the peasantry. Unless it becomes a paying proposition or else some sufficient large-scale dairy industry is substituted for it, cattle breeding is likely to remain more or less an economic liability to the cattle breeders.

Creameries

It should be realised at the outset that in Gujarat there is a very limited number of creameries. They are mainly found in (i) Kaira District, (ii) the bordering villages of Baroda State, (iii) Ahmedabad District and (iv) Cambay State.

In all there are hardly 35 creameries in Gujarat, out of which 16 are at Ahmedabad,†3 at Surat,†1 at Anand, 2 at Bhalej, 1 at Mehmedabad, 2 at Kanjari, 1 at Visnagar and about half a dozen more in the Baroda State at centres like Mehsana, Navsari, etc. From among these creameries only two are registered, one at Ahmedabad employing 44 persons‡ and the other at Anand employing 130 persons‡.

Equipment: The creamery owners keep cream separators (or milk separating machines) usually of 90 gallons capacity. These machines used to cost in per-war days Rs. 300 each. In addition an ordinary creamery owner keeps one copper 'bamba' and copper vessels to heat water, big brass pots to collect milk, four to five dozen cans for despatching cream, weighing scales and measures for purchasing milk and in

* 'Dalda' Vanaspathi Oil.

† Of these creameries 14 at Ahmedabad and all the dairies at Surat are mainly devoted to butter making. A few others of this type are found at Baroda, Broach, etc.

‡ Lord's Dairy at Ahmedabad and Polson Model Dairy at Anand.

addition buckets and lanterns.*

Organisation : Most of the creameries are small proprietary concerns. The proprietors invest their own capital in the industry and manage the business. They usually employ a clerk to pack the cans and apply labels. Besides, they employ labourers to take cream cans to the station. They purchase milk directly from the cattle breeders and pay the price according to the cream contents of milk.

Marketing : The profits of these creamery owners were steadily declining because of (i) internal competition, (ii) absence of gradation, (iii) high transport costs from Anand to Bombay, and (iv) poor quality of milk due to partial starvation of cows and buffaloes. The average income of these creamery owners was therefore about Rs. 100 in 1938. The price of cream has increased from 9 as. per ratal in 1938 to Rs. 2-3-0† per ratal. But as there was no appreciable rise in the price of Casein‡ and also because of the scarcity of milk available to them, these creamery owners have on the whole suffered in their business. Their average earning per month at present stands at Rs. 250/—.

Among Gujarat's creameries the biggest is the Polson Model Dairy at Anand. The annual production of butter of this factory stood at 1,302,373 lbs. and that of casein 3,000 maunds in 1938. This factory claims to its credit about more than half the total output of cream and butter within this province. As this factory has entered into contract with the Bombay Government to collect milk from Anand and adjoining villages and to supply it to the Bombay Government, on the whole it has maintained good progress in its trade.

Casein Making

As already pointed out most of the creamery owners in

* The equipment of a small creamery owner is usually worth Rs. 3,000

Milk Separating Machine of 90 gallons capacity .. Rs. 1500

2 brass pots for collecting milk, 170

1 Copper 'bamba' and 1 'tapela' for heating water, 180

3 dozen cans for despatching cream, 500

Weighing scales and measures, 250

Buckets and lanterns, 100

† In 1944 for some time cream was quoted at Rs. 2-12 per ratal.

‡ Casein was sold at Rs. 8 per ratal in 1938 while now it is sold at Rs. 10 to 11.

Gujarat turn skimmed milk into casein.* For casein making they require big tubs, a wooden press, 'chaddars', sieves, etc. But they adopt very crude processes. They use whey, while for better results more suitable acetic acid ought to be used. They do not know the proper proportion of mixing and also more scientific methods of manufacturing casein. Moreover as mentioned before, there is no appreciable rise in the price of casein. Before the War it was about Rs. 8 per ratal while at present it generally varies from Rs. 10 to Rs. 11.

Marketing: Before World War II Gujarat's casein was sold at low rates in the foreign markets where it had to withstand the competition of more scientifically manufactured casein of Argentine, France, etc., while after the out-break of World War II there was complete stoppage of its export. It is therefore evident that but for the establishment of plywood factories in India during this war period casein making would have suffered a death-blow. These plywood factories consumed all the available supply of casein within the country. However, during the last year their demand for casein has fallen and it is likely to have a further fall when plywood is imported from foreign countries.

Scope : Attempts should therefore be made to manufacture milk powder and condensed milk out of separate milk instead of casein so that these milk products can be directly consumed by the public. Whey is practically thrown away by all the casein manufacturers, it can with advantage be utilised for manufacturing lactose. Hence the possibilities in this direction should be explored. Finally in order to increase the output of dairy products wherever possible more area should be taken under fodder cultivation within the province. This will result in (i) improving the cattle breed, (ii) increasing the milk supply and also (iii) reducing the maintenance cost of cattle.

* From 100 ratal skimmed milk 3 ratal casein can be obtained. Present market price of skimmed milk is 3 as. per ratal. Its prewar price varied from 9 pies to 1 anna while during the war it ranged from 2 to 4 as. per ratal.

CHAPTER IV TEXTILES

In India, Gujarat is proverbially known as the province of 'shop-keepers'. Perhaps the greatest business acumen is to be found in this part of India and especially in British Gujarat which is industrially the most advanced territory in Gujarat. Next to it, from the point of view of economic development stands the territory of the Baroda State; while the rest of Gujarat is still marking time for its economic regeneration. Till very recently it was divided into 196 small territorial divisions, each of which claimed special rights and privileges from the British Government and had its independent jurisdiction. The rulers of these areas failed to join hands to evolve a common economic policy that might result in the well-being of their subjects. Some areas on the border of Gujarat like Rajpipla, Jambughoda, Devgad Bariya are no doubt rich in mineral and forest wealth, but they lack in modern swifter means of communications and also in the necessary capital and skill to start new industries. Above all, they failed to adopt a progressive policy which could easily attract outside capital.

Industrial Workers

According to 1931 census returns only 3,50,734 persons were engaged in industrial pursuits in this Province. Of these 2,94,277 were principal earners and 56,457 working dependents.* Under the major occupational heads these persons could be divided as under :

Industry	No. of Persons	Industry	No. of Persons
Textiles	1,25882	Furniture Industries	884
Toilet and Dress ..	53,506	Production and	
Wood	36,575	Transmission of	
Ceramics	33,011	Physical Force ..	351
Hides, Skins, etc ..	20,905	Construction of Means	
Metals	15,494	of Transport ..	239
Building	15,343	Miscellaneous & Un-	
Chemical Products	11,797	defined Industries	434
Food Industries ..	10,313		

Total 3,50,734

* Table No. 33 in the Appendix gives the details about the persons employed under the Major Occupational Heads in Gujarat.

Among these 3,50,734 persons engaged in industrial pursuits, there were 1,24,125 artisans.* On the other hand, the number of workers in the registered factories in 1937-38 was found as under :—

Area	No. of Workers
† British Gujarat	95,119
‡ Baroda State (excluding Amreli and Okhamandal)	23,990
¶ Rest of Gujarat	7,000
	<hr/> 1,25,809

Hence, 1,00,800 persons were employed in small-scale and cottage industries. We thus arrive at the following classification of the industrial workers of the Province :—

Registered factory industries ..	1,25,809
Small-scale & cottage industries ..	1,00,800
Artisans	1,24,125
Total	<hr/> 3,50,734

A. Large-Scale Textile Industry : **Cotton Mills

Food and clothing are the basic necessities of man's life and as such they play a very important role in the economic life of a nation. In this connection Gujarat happens to be one of the important cotton growing tracts of India and the principal province that is reputed for the production of special pattern cloths since ancient times. The development of the mill industry

* We have culculated this figure regarding the workers under the following sub-heads as the artisans, viz;—leather workers, carpenters, turners and joiners, basket makers, etc.; blaksmiths, brass and copperware workers, other metal workers, potters, brickmakers, other workers in ceramics, vegetable oil workers, other oils, grain parchers, sweetmeat makers, other food industries, embroiders, hatmakers, etc; cabinet makers, etc. For details vide Table No. 34 in the Appendix.

† Figures taken from the Seasonal and Non-Seasonal Factories Lists.

‡ Figures taken from the Large and Small Industrial Establishments in the Baroda State, 1936-37.

¶ Our estimate from the Administration Reports of the Gujarat States and from the statements collected by us during our personal investigations.

** By large-scale industries we mean industties where power is used and the number employed exceeds 500.

in Gujarat begins with the floating of a cotton mill on a small scale at Broach by about 1856 by a European named Mr. Landen. "It is the same mill" which today "bears the name of Broach Cotton Mills, which in years gone by was managed by Messrs. Greaves Cotton & Co."* But the foundation of the textile mill industry at Ahmadabad, unlike Bombay or Broach, is exclusively Indian. It was laid by the Ahmedabad Spinning and Weaving Mill in 1859, under the management of Mr. Ranchhodlal Chhotalal, C. I. E. Its steady success, despite the difficulties of management and a supply of skilled labour, attracted more capital for establishing new textile mills.† The following table shows the steady progress of the Ahmedabad mill industry, since its birth in the fifties of the last century: ‡

Year	No. of Mills	No. of Spindles	No. of Looms	Average No. of Persons employed
1914	49	9,75,616	20,063	35,415
1919	51	10,65,259	22,322	39,440
1922	56	11,32,918	26,094	52,571
1926	60	14,98,288	30,224	52,159
1932	62	16,49,683	38,813	72,084
1933	62	17,35,862	40,862	77,743
1934	52	17,58,559	43,165	78,593

The following are the main causes which contributed greatly to the rise of this industry, viz:— (i) the peace and security after 1858, (ii) the feeling of the people that there were no rival traders like the East India Company after 1833, (iii) the Proclamation of the Queen that "it is our earnest desire to stimulate the peaceful industry of India", and above all (iv) the construction of railways which opened up the interior market for these textile manufactures.

It is however necessary to point out that upto the end of the 19th century the Government of India took steps to encourage the imports of Manchester goods by imposing 5 per cent import duty on the long-stapled cotton yarn, so that the

* Sir D. E. Wacha : *"Shells from the sands of Bombay, being My Recollections and Reminiscences" 1860-1875*

† B. D. Badshah : *Life of the Late R. B. Ranchhodlal Chhotalal C.I.E.* Times of India Press, Bombay.

‡ Figures taken from the Reports of the Millowners' Association, Ahmedabad.

Indian mills might not import finer yarns from Egypt or America. If in 1896 the Government of India had to impose 5 per cent ad valorem duty on the imported cotton goods and yarn for increasing their revenue, they also imposed 5 per cent excise duty on all yarns of 20 counts and above spun in power mills in British India.

Consequently the Ahmedabad mill industry did not make very rapid progress during the first two decades of the 20th century. The number of mills in Ahmedabad in 1894 was 12, and in 1900 it was 27 from which it rose to 49 in 1914. In the beginning of this century the national awakening with its Swadeshi movement gave much fillip to the Indian cotton textile industry; while during World War I the industry witnessed unprecedented prosperity but it could not expand because of the difficulty of obtaining new machinery and plants from abroad.

After World War I the Government of India, owing to public pressure, tried to protect the industry as against unfair Japanese competition made possible by (i) the depreciation of currency, (ii) double shift work, (iii) employment of female labour at night, (iv) indirect State subsidies and (v) low freight rates etc. in Japan. But at the same time they tried to safeguard the Lancashire interests in the Indian markets. This their attitude was made quite clear from the measures they adopted after (i) the Tariff Board enquiry in 1926 and (ii) Mr. Hardy's enquiry in 1929 and also from the Indian Cotton Textile Industry (Protection) Act 1930. They simply took steps against the Japanese competition, but in order to safeguard the Lancashire interests they adopted differential rates, and did not give general protection to our textile industry against all the foreign imports. The Tariff Board in 1932 reported against the imposition of these differential rates of duty and they were of the opinion that the tariff wall should be raised against the United Kingdom goods as well. They are also reported to have come across several cases in the Calcutta market where British goods of medium counts were selling at prices not higher than the ruling Japanese prices.

The Government of India ultimately entered into the Indo-Japanese Trade Agreement by which they fixed the quota for the import and export of cotton and cotton manufactures between these two countries and thus averted the undue competition.

But in order to safeguard the Lancashire interests in spite of public agitation they embodied the principle of Imperial Preference by upholding the Mody-Lees Pact in 1933 and by concluding the Indo-British Trade Agreement on the same principle in 1939, though the latter was twice rejected in the Legislative Assembly.

The recent position of the organised textile industry in Gujarat is summed up in the following table :-

	Number of Spindles	Number of Looms	Number of Persons employed
Ahmedabad City*	19,42,286	47,147	74,279
Kaira*	59,028	1,128	2,311
Broach*	51,828	1,174	2,144
Surat	....	....	1,388
Viramgam†	49,508	1,187	2,160
Baroda‡ (Gujarat)	3,32,100	7,110	20,200
Cambay¶	....	332	656
Total	24,34,750	58,078	1,03,148

Compared to the Bombay Presidency and all-India figures, Gujarat possesses 50 per cent of the Bombay Presidency looms and 25 per cent of the total all-India number. As regards the number of persons employed, the Gujarat mill industry employs 50 per cent of the Bombay Presidency figures and 25 per cent of the all-India figures.

As for the quantity of yarn spun—

	Yarn spun in Lbs.
Ahmedabad City§	195,848,676
Baroda State (Gujarat Area)	33,200,000
Cambay	1,822,533
Total	230,811,290

* Table computed from the Annual Reports of the Bombay Mill-owners' Association and Statistics of Cotton, Spinning and Weaving in Indian Mills 1938-39 figures.

† N. B.—We have included Viramgam figures in this table because the whole Taluka geographically belongs to Gujarat.

‡ 1939-40 Baroda State Administration Report.

¶ 1937-38 Cambay State Administration Report.

§ It goes without saying that as for cotton weaving Ahmedabad has been the metropolis of Gujarat. Thus out of 109 textiles mills employing more than 500 persons in Gujarat, 88 are in Ahmedabad and only 21 in other parts of Gujarat, of which 16 are in Baroda (Gujarat area), 3 in Broach and Panch Mahals, 1 in Kaira 1 in Surat and 1 in Cambay.

Figures for Kaira, Broach, Surat and Viramgam are not available, yet the above figures show that Gujarat has to its credit more than one-sixth of the all-India production.

Increasing dominance of Ahmedabad over Bombay

The following figures prove conclusively that of late (that is, before the out-break of World War II) this industry was shifting more to Ahmedabad and Bombay was comparatively losing its importance.

		Mills Working*	
		1931	1936
Bombay	....	73	74
Ahmedabad	....	73	84
		Looms Installed	
Bombay	....	76,975	68,348
Ahmedabad	....	40,022	50,811
		Spindles Installed	
Bombay	...	3,427,000	2,985,357
Ahmedabad	...	1,743,523	2,041,514

The most important factors which gave Ahmedabad the upper hand in this connection were the following:—

Ahmedabad is situated in close proximity to the consuming centres. Therefore in supplying the local and upcountry markets there is a considerable saving in the railway freight, steamer freight, etc. On the other hand, Bombay is a port and as such it is comparatively away from the consuming centres.

In Ahmedabad, owing to the intervention of Mahatma Gandhi, much of the labour trouble was averted during the last decade. Besides, as compared to Bombay, Ahmedabad has a more contented labour force. It was thus possible to avoid mill strikes, disturbances, etc. which cause immense loss to the national wealth. In Bombay during this period no proper machinery was available for settling disputes between the employers and the employees.

Among the minor disadvantages of Bombay might be mentioned the higher (a) cost of fuel and water, and (b) local taxation.

The Effect of the war on the Industry

World War II created a war-time boom in this industry as

* Figures taken from the Bombay Millowners' Association and Ahmedabad Millowners' Association Reports for the years concerned.

it made a heavy demand for its production. All the textile mills in India worked in double shift and made huge profits. However, the Government of India could not allow the textile mills to swallow all the war-time profits. As the war put a heavy strain on Government treasury, they were obliged to find new sources of taxation. To meet the war expenditure they imposed Excess Profits Tax from April 1, 1940*, and a little later they introduced the Optional Deposit System by which the Government undertook to contribute 10 per cent of the Excess Profits Tax, if the assessee paid twice that amount by way of deposit at the disposal of the Government. In May 1943 the Government of India by an ordinance converted the Optional Deposit System into a compulsory one. At that time the rate fixed was 20 per cent Excess Profits Tax which meant 13½ p. c. of the excess profits. In 1944-45 it was raised to 19/64 of the excess profits, at which it continued upto 31st March 1946 when ultimately this system of compulsory deposit was abolished.

The Government of India introduced Compulsory Deposit System in order to combat the evils of inflation. From their view-point not only was it an anti-inflationary measure, but it was also a measure which was intended to safeguard the interests of the industry during the post-war period. For the Government have made it obligatory for the textile mills to use this amount when refunded for the reorganization of the industry.

In this connection it is interesting to notice how far the Ahmedabad textile industry has been able to build up reserves for the replacement of the existing plants and machinery. The war made the machinery run at top speed and this has resulted in an unpercedented wear and tear of the equipment. As it is, at the ruling prices the total requirements of the Ahmedabad textile mills for (i) the modernization of some of their departments and (ii) the replacement in part of their machinery, stands at Rs. 40 crores.† However, when the

* For the year 1940-41, 50 per cent Excess Profits Tax was levied on the standard profits of the mills. However, next year (that is in the year 1941-42) it was raised to 66½ p. c. From April 1, 1942 Optional Deposit System was introduced by the Government of India which was converted into Compulsory Deposit System in May 1943

* This information was supplied to the Hon'ble Court for consideration
(Contd. on next page.)

amount of their capital and depreciation reserves as well as refund of the Excess Profits Tax deposits is taken into account they have built up a total reserve of about 16 crores and their present machinery is valued at Rs. 14 crores. As such with a little more effort on the part of the millowners of Ahmedabad, there are very good possibilities of putting this industry on a scientific footing. The war has thus created a very favourable situation for a complete reorganization of this industry.†

B. Small-scale Textile Industries*

Powerloom Weaving Factories

History : The growth of powerloom factories in Gujarat is of comparatively recent origin. They were started after 1920 in different parts of Gujarat and especially at Surat and Ahmedabad. In the post-war period that is after 1919, the handloom products at Surat and Ahmedabad began to feel the competition of mill products and to lose ground in the market. Some of the handloom factory owners at Surat and Ahmedabad therefore purchased powerloom plants to secure greater speed of production and effect incidental economies of machine production. For example, the present Ahmedabad Fine Weaving Factory was a handloom weaving

(Contd. from last page.)

by the Ahmedabad Millowners' Association at the Industrial Court, Bombay, in connection with their dispute regarding the dearness allowance with the Textile Labour Association in September 1945. The figures were quoted in support of their argument that they would not be able to provide the required allowance to the T. L. A. For if they did so, they would not be able to form an adequate reserve required for (a) the post-war planning and reorganization in order to meet the foreign competition and (b) the post-war contingencies such as arising out of depression.

† As regards Ahmedabad, it is reported that per individual mill on an average there is a fund of Rs. 9 lakhs to meet the requirements of the renewals of existing machinery and post-war planning, while from the point of view of modernisation of certain departments and the replacements in part of the existing machinery, the total requirement for the post-war planning will be about Rs. 20 lakhs per average mill. This requirement is calculated on the present ruling prices of the textile machinery as available in U.K. and U.S.A. So if the prices go down this much reserve might be sufficient. However, it should also be realised that orders for capital goods have been placed under the Import Control Orders in the years 1945 & 1946. So the above fund will not be sufficient for the complete overhaul of machinery and plants.

* By small-scale industries we mean those industries where power is used and where the number of workers does not exceed 500.

factory with 50 looms in 1925, but in that year its proprietor invested Rs. 1500 and secured old powerlooms from the local mills. The following statement gives the total number of powerloom factories (registered as well as unregistered) in the different parts of Gujarat, together with the number of looms they own:—

	No. of Powerloom Factories	No. of Looms		No. of Powerloom Factories	No. of Looms
Ahmedabad	50	500*	Baroda		
Surat	46	1081*	(Gujarat- Area)	20	200†
Broach and Panch Mahals ..		10*	Rest of Gujarat	10	150†
			Total	126	1941

Thus, there are about 126 powerloom weaving factories in Gujarat with about 2,000 looms, employing in all about 2,000 workers. ‡

Almost all the powerloom weaving factories at Ahmedabad and the other parts of Gujarat undertake silk and cotton weaving, while out of the 46 factories at Surat 23 are solely devoted to the production of silk goods and the rest to the silk and cotton mixed goods.

Raw Material: These factories mostly produce cloth for shirting, coating and bodice ('Khans'). They also manufacture Saris. For this they require spun silk, mercerised cotton and artificial silk yarn as the raw material. However, Surat tops the list as regards the number of powerlooms in Gujarat and it is evident from the above statistics that Surat factories have concentrated more on the production of silk goods. They therefore require spun silk more than any other centre of Gujarat.

Raw silk was available to Surat from Kashmir, Bengal, Mysore, China, Japan, etc., spun silk yarn especially from China and Japan; and artificial silk yarn from England, Italy, Germany and Japan. But World War II made it increasingly

* Estimate of the Bombay Economic and Industrial Survey Committee, 1940.

† Our estimate from personal investigations.

‡ 46 Powerloom weaving factories of Surat having 1081 looms employ 1089 workers; vide Non-Seasonal Factories List, Surat; 1937.

difficult for Surat to obtain foreign yarn and it put a total stop to the imports of Japanese yarn. Consequently most of the Surat factories have taken to the weaving of cotton cloth.

The main complaints of the Surat manufacturers about the the Indian silk are: (i) its comparative high price (difference being of Re. 1 to 1-8 per lb. in per-war days); (ii) its inferior quality as far as the strength of its texture is concerned; and (iii) the unevenness of its thread.

Due to unevenness of the Indian thread many breakages occur while warping, weaving, or doubling. Therefore, either the silk producers, or failing them the silk merchants, should devise ways and means for the sorting and grading of silk. It is also desirable to give proper deniers to silk and to establish testing centres at every silk producing centre of India. As loss in degumming is greater in case of Indian silk, there is also scope for the improvement in silk worm rearing.

It is however interesting to note that of late mixed goods production was fast replacing the production of pure silk goods even at Surat. In this connection staple fibre is found cheaper and more convenient for use. This is because as regards the evenness of thread and the strength of the texture, it fares definitely better than the artificial silk yarn. Therefore during the year 1936-37 Surat city is reported to have consumed about 60,000 lbs. of staple fibre yarns and thereafter not less than 40,000 lbs. of yarn per month. Thus, here is a market created by a successful competitive substitute in the shape of staple fibre which the Indian producers must capture.

The annual consumption of the largest powerloom weaving factory at Ahmedabad during the year 1937 was 3,500 to 4,000 lbs. of yarn mostly imported from Japan and Italy.* Bengal yarn is found coarser. It is uneven in texture and therefore suitable only for shirting and Saris and not for coating. Mysore or Kashmir yarn can serve as a better substitute but it is dearer. It was sold at Rs. 8 per lb. in 1937 when foreign silk yarn was available at Rs. 5 per lb. However, on account of the total stoppage of foreign imports during World War II, these Ahmedabad factories (like all other Gujarat factories) have taken to the weaving of cotton piece-goods and they are using cotton yarn of

* M. N. Jakate: *Small-scale and Cottage Industries in Ahmedabad* (1944 thesis).

required counts produced by the Indian mills.

Equipment: In Ahmedabad most of the powerloom factory owners have purchased their looms from the old stock of textile mills at varying prices depending upon the condition of the looms. As the machinery is old, the output at Ahmedabad suffers to a certain extent in its quality and quantity. For the old plant is never so efficient as the new. In this connection the Surat plants are mostly new and they are purchased from Bombay.

Finance: The capital invested in the powerloom weaving industry at Surat is of Rs. 25 lakhs* and at Ahmedabad about 3 to 4 lakhs†. The total investment in the equipment, that is in the plant and machinery for all Gujarat stands at Rs. 32 to Rs. 35 lakhs and an equal amount remains locked up in the raw materials and the finished goods of the industry. Even a mild estimate of the wear and tear and repairs of the machinery at 8 per cent of the total investments means Rs. 4 lakhs a year. While paying attention to old plant and machinery used from the very start in the Ahmedabad factories and the strain of World War II on this machinery, a 25 per cent reserve—a reserve of Rs. 8 lakhs a year, needs to be created for the complete overhaul of machinery and plant in the very near future.

Generally, in Gujarat the owners of powerloom factories have invested their own capital in the industry. But they often approach the local shroffs for an advance of money for a short term for which they are charged 6 per cent interest at Surat and Ahmedabad. Even though in purchasing yarn they usually get credit facilities from the yarn merchants, occasions do arise for borrowing money from the local shroffs for payment of wages to the workers. It will therefore be in the interests of the proprietors at Surat and Ahmedabad to establish banking corporations on co-operative basis from which they can obtain cheap credit and better financial accommodation. Side by side an organisation for the co-operative purchase of yarn also deserves careful consideration.

Labour: Weavers in these factories are both male and female and they are paid on piece-rate, that is 1 to 2 annas per yard

* Vide *The Silk Weaving Industry of Surat* by the present writer.

† Dr. B. J. Jaiswal: *Small-scale and Cottage Industries in Ahmedabad* (1944 thesis).

according to the nature of work or quality of output. Weekly wages are distributed to all these weavers who work on piece-rate. But for the damaged pieces they do not get any remuneration. If the damage is slight, a fine is imposed according to the extent of damage and often such fine amounts to 25 per cent of the wages accrued. Born in poor condition they can hardly afford to spend time and pay fees for obtaining the necessary training for handling the powerloom machinery. There is therefore an imperative need for opening up necessary training schools for them at Surat and Ahmedabad. Besides, it is reported that in the case of Ahmedabad, those workers whose services are rejected by the textile mills join the powerloom factories. This inefficient labour to a certain extent affects the quality of Ahmedabad goods.

The dyeing of yarn still persists by hand process in these factories, for which generally males are employed. For winding and warping processes machines are used and in the winding process female and even child labour is employed. For warping and for pirn winding young boys as well as adult and aged males are employed. For calendering, machines are now available, but for processes like carding, cutting, lacing, harnessing, etc. various hands are working within these factories.

For the dyeing of yarns there is a great need for a complete Dyeing, Bleaching and Finishing Plant at Surat. In its absence a large quantity of cloth is sold in an unfinished or semi-finished condition. Hence the producers do not obtain the proper price. Even for producing partly finished goods, the hand process at present resorted to is costly and defective.

Market: These Gujarati factories sell the bulk of their goods to the wholesale dealers of the Punjab, the United Provinces, Sind, Bengal and other provinces. They send their canvassers and agents to the important upcountry marketing centres to solicit orders. They mostly produce goods at their risk and forward the same to the upcountry merchants to sell them on commission basis. They thus (i) take party risk, (ii) develop their contacts with the well-known dealers of the various centres and (iii) induce them to stock their goods in their shops. There is, however, an understanding that at fixed intervals (usually 15 days after the sale) money will be remitted by these upcountry merchants to them. To the credit of the upcountry merchants,

this system seems to be working very well and cases of default are rare. It is customary with them to make payments at intervals mutually arranged or agreed. Whenever there is any very variation in the public taste, these upcountry merchants inform the producers about necessary changes in the design or pattern of cloth. They thus form a link between the consumers and the producers.

In the past the Surat manufacturers used to send small quantities of their goods to Goa, Siam, Singapore, Africa, Burma, Ceylon, Afghanistan, Baluchistan, etc. Possibilities of developing the foreign markets therefore demand a special study. A good sales organisation should be set up to supply information regarding the important markets where the goods can be disposed of with advantage. This organisation should explore all the avenues to extend the interior markets in India and to develop the overseas markets. In addition, it should compile a directory of the important markets and their influential merchants.

In this connection the existing Surat Silk Weavers' Association can be very useful. It should extend its activities and achieve a status whereby it can dictate its policy and issue regulations to be carefully by observed by all the powerloom factory owners of Gujarat. Unless a spirit of active co-operation is shown by all the producers in Gujarat, evils like internal jealousy, competition, etc. are bound to spread. There is already a belief prevalent among the Gujarat producers that the Surat producers are competing with the Ahmedabad producers in the upcountry markets. These unhealthy tendencies and beliefs need to be nipped in the bud.

Surat's dominant position in the Market : If the Surat producers are able to sell at a cheaper rate in the up-country markets it is because of the installation of new machinery in their factories. Moreover, the Surat manufacturers produce finer quality goods as compared to Ahmedabad and other centres of Gujarat. Therefore Surat goods attract immediate attention. Besides, at Ahmedabad the more efficient labour is always attracted towards the large-scale textile industry, viz. the cotton mills. Therefore the less efficient labour is available to the powerloom factories. In addition, Surat is the 'home of cottage weavers' in Gujarat as far as silk, cotton and wool weaving is concerned. The workers therefore usually know

how to handle the various weaving processes. Though they are not acquainted with the machinery and the technique of a powerloom factory, they are enthusiastic to adopt the new methods. These are the incidental advantages which favour the Surat producers. Ahmedabad industry therefore needs to come upto the mark in the above requirements.

Future : The powerloom factories have a very bright future in this province. Factories situated in small towns find labour comparatively cheap; and since they cater to the needs of the localities concerned, they save a good deal in transport charges. Their owners are also able to avoid all overhead charges like Directors' fees, Agents' commissions, etc. They keep the factory accounts, supervise labour, manage the business and sell goods personally. Thus most of the evils of the Managing Agency system are conspicuous by their absence in these small factories which are practically the mills in miniature. These factories should serve as a great incentive to the mill industry to take to rationalisation and scientific management, as otherwise their negligence in this direction is likely to give impetus to the growth of powerloom factories in Gujarat and elsewhere.

However, the scope for the growth of powerloom weaving factories lies in the production of piece-goods like coating, shirting, etc. They are at present successfully able to withstand the textile mill competition in the production of bodice cloth ('Khans') and also Saris. The Saris are produced in small lots as every now and then their patterns and designs have got to be changed. Therefore they can be conveniently manufactured by the powerlooms. Incidentally it is worth while to point out that these powerloom factories are able to weave cloth from the mill wastage yarn which is rejected by the textile mills.

But the powerloom factories have to depend upon the spinning mills for their yarn. Besides the goods which are produced on mass scale, e.g. 'dhotars' produced in thousands are going to remain the monopoly of the textile mills, since all the advantages of large-scale production weigh in favour of the large-scale textile mills. Therefore though apparently these two systems of production are found competing with each other during this transitional stage of the textile industry, ultimately

they will adjust their supply (which means the field of their activity and operation) in some way so as to meet the public needs economically and efficiently.

Hosiery Factories

History : Before World War I most of Gujarat's requirements in hosiery were supplied by imports, notably from Japan, and the Province had not a single hosiery factory worth mentioning. However, after 1920, substantial progress has been achieved in home production and Ahmedabad has been the only—but a very important—centre of Gujarat that contributes the largest quota to the hosiery production of the Bombay Province.

There are at present 14 hosiery factories in the Bombay Province, the territorial distribution of which is as under :—

	No. of Factories	No. of workers employed
Bombay Suburban	1	72
Poona	2	146
Bombay City	3	65
Ahmedabad	8	1,497

Thus Ahmedabad employs about 1500 workers in the hosiery factories while all other centres of the Bombay Province put together employ only 263.

Organisation, Raw Materials and Production :

At Ahmedabad all but one are proprietorship concerns. The raw materials used by them are cotton, wool and silk yarns. Of these, only the cotton yarn is Indian and the rest are foreign. Ahmedabad factory owners complain about the inferior quality of Indian silk and wool. There is therefore a great need for the improvement of sheep-breeding in Gujarat.

The main products of the Ahmedabad factories are buniyans, jacquards, underwears, mufflers, socks and hoses. The brisk season for the production of cotton goods is summer, while that for the production of woollen goods is winter.

The total annual output of Ahmedabad hosiery is estimated at Rs. 12 lakhs, while the raw materials utilised by them for this production are estimated to cost Rs. 9 lakhs.

Besides the above mentioned factories at Ahmedabad, there are a few smaller establishments at Ahmedabad and other centres of Gujarat like Baroda and Surat which do not

come under the Factory Act. They generally own a few knitting machines and produce mainly for the local markets. The hosiery production is thus carried on both on small-scale and cottage basis in Gujarat.

Market : The market for the hosiery is local, provincial as well as inter-provincial. The sale is restricted to the wholesalers and the retailers in the Ahmedabad market and to outside merchants through independent canvassing agents. No internal competition is prevailing among the Ahmedabad manufacturers because the quality and the standards of production differ from factory to factory.

Finance : Mostly the owners of the factories have invested their own capital in the industry. However, in case of need they, just like the owners of the powerloom weaving factories, approach the local shroffs for short-term loans for which they generally pay 6 per cent interest. They therefore require facilities for obtaining loans at a cheaper rate on the security of their unsold stock.

Future : This is an industry of comparatively recent origin and looking to the pre-war foreign imports of the Bombay Province there is still considerable room for the production of hosiery goods in Gujarat. The imports of the Bombay Province stood at Rs. 18 lakhs in 1937-38.* No doubt on account of World War II foreign imports had totally ceased, but the industry experienced very great difficulty in obtaining needles. During the War therefore out of the eight factories of Ahmedabad, four were closed simply due to the shortage of needles in the market. In order to remove this dependence of our textile industries on foreign machinery and machine parts, industries producing capital goods need to be established in the country.

C. Cottage Textile Industries†—Handloom weaving

From the statements gathered from various quarters and from our special enquiry we are able to prepare the following

* "Only a few years back most of our requirements in hosiery were supplied by imports... Recently, however, substantial progress has been achieved in home production... There is still more room for the production of hosiery goods in the Presidency."—Report of the Bombay Economic and Industrial Survey Committee 1938-40, Volume I, pp. 66-67.

† Cottage Industries are industries where no power is used and the manufacture is carried on, generally speaking, in the home of the artisan himself and occasionally in 'Karkhanas'.

estimate about the existing number of handlooms in Gujarat:*

	No. of handlooms
British Gujarat	2,500
Baroda (excluding Amreli and Okhamandal)	1,500
Rest of Gujarat	3,500
	<hr/> 7,500

While enquiring among the handloom weavers, it was found that their number as compared to the pre-war days was steadily declining year by year in Gujarat. Even though World War II interrupted this process, the same trend is likely to be resumed with the revival of international trade.

The handloom weavers in the scattered villages of Gujarat mostly weave rough khaddar† and they feel the competition of factory goods in the varieties they produce.

1 Silk-Weaving

History: Ahmedabad, Dholka, Surat and Patan are the important silk weaving centres of Gujarat. Of these, Surat has recently added a great deal to its importance, but the industry here has strengthened its position more on the factory basis rather than on the cottage basis. As far as the silk weaving industry on cottage basis is concerned, Ahmedabad and Surat were once famous for the excellence of their silk piecegoods.‡ But this handicraft greatly declined under the Marathas as they levied (i) exorbitant taxes, and (ii) export duties on silk goods.¶

In the early decades of the 19th century it further declined (i) at Ahmedabad (with the disappearance of the Royal Court and nobles from Ahmedabad) and (ii) at Surat (with the shifting of Surat's trade to Bombay). Later on (i) the appearance of the machine made goods, (ii) change in the fashion and (iii) the growing poverty of the masses, brought about further decline of this handicraft. In addition, during the present century, artificial silk goods coming from Europe and Japan

* Table No. 35 in the Appendix gives the details about the Centres, Number of looms and the quality of yarn used.

† 'Gaji'.

‡ Geoghan : *Some Account of Silk in India*, p. 45

¶ Mr. Dunlop's Report in 1818 Ahmedabad Gazetteer, p. 136

also cornered many of the former silk goods markets in India. This handicraft is therefore in a state of decay and it has lost much of its importance, as will be realised from the following account of the main silk products of Gujarat.

(i) *Sari*: Weavers at Dholka weave fine count Saris with pure jari ('Tasa') borders. Textile mills found it impossible to weave cloth with such jari borders, as with a slight jerk 'jari' used to break. But the Ahmedabad dealers nowadays purchase mill-made plain Saris of fine counts and get tailors to stitch jari borders on to them. This has worked out as a cheaper proposition and therefore brought about a decline in the demand for Dholka Saris. Most of the workers at Dholka are outworkers. They get raw materials, viz. yarn of the required counts, jari etc. on credit from the local merchants to whom they sell their Saris when they are ready. As the demand for Dholka Saris has declined, out of the original 600 looms only 335 were working during the year 1938. However, they were practically rendered idle after the out-break of World War II as they could not obtain silk yarn during war time and whatever quantity was found in the local market was only available at a prohibitive price. Their income during the pre-war days was Rs. 9 to 10 per month while during the war those weavers who took to the production of cotton piece-goods earned Rs. 25 to 30 per month.

(ii) "*Pitambar*": Pitambar weaving as a cottage industry is also on the verge of extinction. They were formerly manufactured on a considerable scale on handlooms at Ahmedabad, Surat, Broach and Patan. But a decline in their demand has been brought about by the change in the public taste and customs. Therefore in all hardly half a dozen Pitambar weavers were at work at Ahmedabad and Patan during the year 1938. There is no possibility of reviving the demand for Pitambars during these post-war days. Besides, the art-silk Pitambars produced in Bhiwandi and other powerloom factories are nowadays more favoured by the customers as cheap substitutes.

(iii) "*Tanchhoi*" (or weaving of special pattern silk cut-pieces).

"Reshmi Tanchhoi" was once the speciality of Surat. In order to add to the beauty of the cloth the Surat weavers used to impress or print silk cloth on one side. Designs of elephants, lions, etc. were impressed on the cloth that was popular not only

in the Indian markets but had gained a footing in foreign markets as well. But during the depression of 1930 all its Indian markets were lost to it and no contact with its foreign markets was maintained by the traders. Hence with the cessation of demand for Tanchhoi its production is already given up by the weavers. Tanchhoi, weaving can be revived if proper guidance is given to these weavers about modern patterns and designs and special measures are adopted to popularise its use in India and in foreign countries.

(iv) "*Patola*" (or weaving of a special pattern silk Sari). Just like the 'Tanchhoi' weaving of Surat, the Patola weaving was and up till now has remained the speciality of Patan. There were reported to be about 700 weavers of picturesque fast-coloured silk Saris (viz. Patolas) at Patan in the days of King Kumarpal. But their number had dwindled down to 100 by the beginning of the present century and to 4 in 1936, and to only 2 in 1940 when we personally investigated into the conditions of Patola weaving at Patan. Thus only two families at present know this art at Patan.

Patola weaving is a very laborious task and it takes 6 years to study this art. Two artisans require 2½ months to make 3 Patolas of 6 yds. x 51." Every thread has to be dipped in a different colour up to a particular length so as to obtain the required design of the elephant, lion, etc. The process is thus a very laborious one and it adds a great deal to the cost of Saris. Therefore their demand has greatly fallen with the manufacture of georgette Saris by the textile mills that work out as cheap substitutes and also by the introduction of spray-work in the mills. The Patola weavers were therefore able to sell only 25 to 30 Patolas a year during the pre-war days. After the out-break of World War II they stopped weaving new Patolas and sold their old stock, for the price of raw material (i. e. silk yarn) became prohibitive in the beginning and that too was not available in the local market after 1942.

(v) "*Sujjani*" : Silk Sujjani making is the speciality of Broach weavers. Without a single stitch, cotton is filled in the quilt while weaving the cloth. To a layman this craft is therefore like one of the seven wonders of the world. It is reported that these 'Sujjani' makers do not teach the art of Sujjani making even to their own daughters. It is their trade secret

not to be divulged to anybody.

Before 1930 the Japanese and other foreign travellers who happened to visit Broach used to purchase these Sujjanis for presenting them to their friends and relations at home. But by 1940 when we personally investigated the conditions of this industry at Broach, there were only two families who made such Sujjanis and it seems with the death of the heads of these two families perhaps this art will die out from Gujarat.

The loom on which they weave the Sujjanis had cost them Rs. 100/- and upon it within 4 days they could make 6 ft x 8 ft Sujjani from the raw materials worth Rs. 12-12-0.* By about 1915 they used to earn Rs. 40 to 50 per month from this industry. But in 1940 their income had dwindled down to Rs. 20 to 22.

There are no two opinions about the fastness of colours and durability of these Sujjanis. They are given in heritage to new generations as they last for 20 to 25 years. What they need is propaganda in the important markets of the world where new demand for Sujjanis can be easily created. A little effort in this direction in marketing centres like Paris, London and New York is likely to achieve very good results. For, these Sujjanis will easily catch the attention of the luxury loving wealthy folk of these centres.

(vi) "*Mashru*": Mashru cloth means the cloth in which during the process of weaving, cotton threads go below and silk threads come up, on the upper side of the cloth. It is a mixed cotton and silk cloth and therefore cheaper as compared to pure silk product. The production of Mashru cloth requires artificial silk, pure silk, mercerised cotton and gul as raw materials. Formerly the rich families in Gujarat used to make galechas, pillow covers, etc. from this cloth. But Mashru weaving on cottage basis is now extinct at Ahmedabad. Though at Patan there were about 500 looms producing Rs. 2 lakhs worth Mashru cloth per year in 1940, they were already feeling competition from Surat powerloom factories which produced goods worth Rs. 50,000 to Rs. 60,000 every year.

In its last stage Mashru weaving on cottage basis has however continued at Patan because labour here is cheap as

* Of which they purchased Rs. 12 worth silk yarn and annas 12 worth cotton.

compared to Ahmedabad and Surat. Moreover, being immune from factory legislation, Patan weavers could work for more hours on their handlooms. Even then the Mashru weaver at Patan was hardly better off than the weaver of cotton cloth and his remuneration was hardly Rs. 10 per month in 1940.

There are $1\frac{1}{2}$ dozen Khatri and Jain merchants at Patan from whom these Mashru weavers used to purchase yarn on credit and to whom they used to sell their finished cloth. As the Patan Weaving Factory began to produce Mahsru cloth at Patan after 1940, the number of handlooms producing Mashru cloth has steadily declined. Thereafter the weavers at Patan are mostly manufacturing cotton khaddar and after 1943, Mashru cloth is mostly manufactured by powerloom factories in Gujarat.

(vii) *Silk Khaddar* : At Surat there are 75 silk khaddar or 'reshmi gaji' weavers. Usually they make silk khaddar cloth of 27" width and they are able to weave 2 yards per day per head. To finish a piece of 70 yards of 27" width each weaver requires $1\frac{1}{2}$ months for which he obtained Rs. 20 from the local merchant in 1940. His income therefore was hardly Rs. 12 to 13 per month in 1940. Most of the 'gaji' weavers of Surat are outworkers and before the advent of powerlooms (that is, before 1920) they were earning Rs. 20 per month while in the hey-days of handlooms (that is, before 1850) they used to earn Rs. 50 per month. Competition from powerlooms has thus resulted in the reduction of remuneration of these 'gaji' weavers. World War II made it impossible for them to obtain silk yarn and hence most of them are producing cotton piece-goods. Their present remuneration is Rs. 25 to Rs. 30 per month.

Silk Weaving Handloom Factories

At Nadiad there are half a dozen silk weaving handloom factories and the owners of each of these concerns own and run 25 to 30 looms. They employ the weavers on piece rates who used to get Rs. 9 to 10 per month in 1940 and the proprietor of each factory on an average earned Rs. 4 to 5 per loom.

However, of late in place of pure silk shirting, suiting, coating, etc., these handloom factory owners have taken to cotton and silk mixed goods production by using gul, staple yarn, and art silk.

Future Trend : It is thus evident that the production of 'pitambars' 'tanchhoi', 'patolas' and silk quilts (sujjanis) on

cottage basis has practically been given up; while silk Saris, silk khaddar and whatever demand at present exists for 'pitambars' and Mashru cloth is met by the powerloom factories. Under the circumstances we might conclude that the fate of silk weaving as a cottage industry is practically sealed for ever.

2 Wool Weaving

Wool weaving on cottage basis has also deteriorated to a deplorable extent in Gujarat. Otherwise Khapariya, Kadod, Hasuka, Vegam, Broach, Limdi, Champaldhara, Sami, etc. were once its well-known wool weaving centres.

The establishment of woolen mills in foreign countries and the heavy inroads of their better quality, cheap, attractive and smooth products into Indian markets brought about a great decline in the demand for the indigenous blankets. This unorganised cottage industry could not withstand mill competition. Hence the 'Gondhs' (untouchables) and the 'Gadariyas', that is wool weavers of Gujarat, complain about the loss of their former occupation. During our investigations we found 20 'Gondhs' engaged in wool weaving at Khapariya, 15 at Kadad, 14 at Hasuka, 10 at Limdi, 7 at Champaldhara, 7 at Vegam and 5 at Broach. However, except at Limdi wool weaving at all other centres of Gujarat had become a side occupation and during the monsoon these weavers worked in the fields.

The handloom of these weavers is hardly worth Rs. 20 and other implements like 'ras', 'randhva' (rope), 'nala' (shuttle), 'kuchado' (brush) cost at the most Rs. 10. They take more time for spinning wool and preparing hanks out of the spun wool than for weaving the cloth. But in the above processes they are usually helped by their family members.

Two artisans usually take 4 days in weaving a 'kamal' (dhabli) 5 'hath' x $1\frac{1}{2}$ 'hath'; and each of them hardly earned Rs. 8 to Rs. 9 per month in blanket making at Limdi during the pre-war days. The weavers at Broach weave very rough 'kamals' of $3\frac{1}{2}$ 'hath' by $1\frac{1}{2}$ 'hath' (that is, about $2\frac{1}{2}$ yds. x yd.) upon a small handloom worth Rs. 5; and they used to earn hardly Rs. 7 per month during the pre-war days. These rough 'kamals' are used as ink pads by the calico printers of Ahmedabad.

Making of pull-overs or blankets of Limdi, jerseys of Khapariya and ink pads of Broach requires to be put on a

scientific footing, because all these products feel the competition of foreign rugs, blankets and woolen piece-goods in our markets. The weavers therefore demanded protection against these foreign imports during the pre-war days.

These wool weavers found a great demand for their rough products from military, semi-military, as well as civil quarters during World War II and they earned Rs. 25 to 30 per head per month by weaving rough blankets and cloth. But this was simply due to the greater need of the military in the Middle East and the shortage of goods in the countries pre-occupied in war. When therefore foreign mills begin to cater to the needs of the civilian population, this war-time fillip in the demand for our cottage products is bound to subside. Under the circumstances, proper steps should be taken for (i) the improvement of sheep breeding, (ii) refining Indian wool, and (iii) improving their old technique of production. Unless this industry is placed on a scientific footing its products will not be able to withstand the foreign competition. Therefore the future expansion of this industry is likely to take place of factory basis rather than on cottage basis in this Province.

3. Jute and Hemp weaving

Jute or hemp carpet making was once carried on in the Panch Mahals on a very considerable scale. But with the manufacture of cotton durries by the textile mills which worked out as cheaper substitutes, there has been a great fall in the demand for Panch Mahal carpets commonly known as 'Tats'. Consequently, hardly 25 to 30 weavers are now engaged in 'Tat' weaving in this district. This cottage industry is thus breathing its last in Gujarat.

Out of 30 weavers in Gujarat, 12 are at Chandwana, 5 at Katwara and the remaining reside in the widely scattered villages of Panch Mahals. These artisans weave very narrow cut-pieces 9 yds. x 8", stitch 3 such pieces together and then sell the product as a carpet in the district markets. Naturally this crude carpet is neither so attractive, nor so smooth, convenient, or cheap as the mill-made cotton carpet. This cottage industry therefore needs improvement in its technique. If broad looms are constructed which can weave carpet cloth $1\frac{1}{2}$ ft. or 2 ft. in width in place of the present 8", such broad carpets

will find a ready market, as they can be used with advantage to cover cricket grounds or staircases.

4. Cotton Weaving

History : Cambay, Kanodar, Broach, Patan, Petlad Surat and Ahmedabad where once very important clothing centres of India where this industry flourished on cottage basis. But (i) the rise of the Manchester cotton industry and its competition in India and also (ii) the establishment of textile mills in India brought about a steady decline in the demand for our handloom products. It was Dr. Gilder who first sold foreign cloth in the Ahmedabad market in 1820 and the cloth sold by him came to be known as 'Doctor's Cloth' or 'Doctor's Yarn'. It is reported that at Ahmedabad there were about 1000 handlooms in 1914* 750 in 1927*, 200 in 1936-37† and only 100 in 1944‡. It therefore goes without saying that every year the number of handlooms goes on declining in Gujarat.

Important Products : In the centres of established repute like Cambay, Kanodar, Broach, Petlad, etc. these weavers have specialised in the production of some particular patterns while in the cities like Ahmedabad, Baroda and Surat they easily find market for their towels, Saris and cut-pieces for shirting, coating, etc. In the scattered villages of Gujarat, they mostly produce rough khaddar ('gaji') in which they now face mill competition.

The principal classes of fabrics woven at present in the handlooms of Gujarat include rough khaddar ('gaji'), Saris, petticoat, cloth ('ghaghrapat' and 'thepada'), towels, bed covers ('pichhodi'), head dress ('paghadi'), durries, etc. However, the weaving of (i) headwear known as 'thobh' used by the Arabs and a speciality of Kanodar; (ii) 'lungi' cloth used by Mohammedans, a speciality of Surat and Ahmedabad; (iii) 'saragia' cloth used as 'Khes' or shoulder wear by the Arabs and a speciality of Kanodar, (iv) 'kalu kapad' or black cloth of Cambay; (v) 'susi' cloth of Zalod mostly favoured by the Bohra community; (vi) 'vahan-ni-bori' or cloth required by the country crafts and (vii) mast or 'shadh' cloth, specialities of Bulsar—all these products have now been given up owing

* Telang : Report on the Handloom Industry in the Bombay Presidency.

† Estimate of the Northern Division Industrial Co-operative Association.

‡ M. N. Jakate: *Small-scale and Cottage Industries in Ahmedabad* (1944 thesis.)

to the fall in their demand. For the purpose of weaving his fabrics the handloom weaver uses (i) our hand spun (ii) our mill spun and (iii) foreign yarn. It is very difficult to arrive at an estimate of the quantity of home spun yarn consumed by the handloom weavers in Gujarat. However as the imported yarn in India mostly consists of 31s to 40s, 51s to 60s, and 61s to 100s and the absorption of Indian mill yarn by the handloom weaving industry is mostly of counts upto and including 40s,* it appears that Gujarat handlooms consume 50 per cent foreign yarn in their productions.†

(i) **Sari Weaving:** In Cambay out of 2,000 looms‡ about 50 per cent are engaged in making Khambhati or Daxini Saris. Chief markets for these Saris are Poona, Sholapur, Hubli, Dharwar, Nagpur and Bombay. As the markets are away from this locality, almost all the Cambay weavers are outworkers. They obtain raw materials from the local merchants, weave Saris on their behalf and get weaving charges. Generally a weaver takes 4 days to weave a Sari of 16 'hath' length and 50 inches width, for which he got Re. 1-0 to 1-8 in 1940, and Rs. 3-8 to 3-12 since the out-break of World War II. Thus the War gave very good stimulus to the handloom weaving industry in Gujarat. The income of a weaver at Cambay was hardly Rs. 10 per month in 1938, from which it has thereafter risen to Rs. 25 to 30 per month.

After 1920 every year there was reported to be a general fall in the export of Cambay Saris by 1 or 2 per cent and its export stood at Rs. 5 lakhs in 1938. This was reported to be due to the competition of the Ichalkaranji, Bhiwandi and Sangli powerloom products. Therefore when the normal conditions are restored this handicraft is bound to suffer elimination at the hands of powerloom factories.

In addition there are in Gujarat 125 looms at Gandeji, 101 at Broach, 70 at Bardoli, 50 at Bulsar, 33 at Mandvi and 33 at Chikhli mostly engaged in weaving Saris favoured by the backward communities like Rani Paraj, Kali Paraj and Dubla. The Saris woven by them are mostly known as 'Chargoti

* M. P. Gandhi : *The Indian Cotton Textile Industry*, 1938.

† For details about the yarn used by the handlooms at the various centres of Gujarat vide Table No. 35 in the Appendix

‡ Vide The Cambay State Administration Reports.

Samsuri' or 'Sumsali' with red, blue, or green borders (viz: 'bharam lai', 'bharam bhura', and 'bharam lila'). They also make other varieties commonly known as (ii) 'Danakor', (iii) 'Chasmai', or (iv) 'Patikor Rasta', with red, blue or green borders. Generally these Saris are 5 yds. \times 44" or 45" and a weaver takes 3 days to weave one such sari.

As plain mill Saris with printed ends are now available, the above handloom products are fast becoming out of vogue and though World War II has given very good impetus to this handloom production, the stimulus given is bound to be of temporary character. When normal conditions are restored once again these products will have to withstand the competition of especially Bhiwandi, Ichalkaranji and Sangli powerloom factories as they cater to the needs of the same markets. Under the circumstances cotton Sari weaving is likely to flourish on factory basis within this province.

(ii) *Petticoat cloth weaving*: At Borsad about 40 looms are engaged in making petticoat cloth more commonly known as 'ghaghrapat'. This special pattern suits the requirements of the Kali Paraj, Rani Paraj and Dubla communities of Gujarat. It therefore finds market in centres like Thasra, Dakor, Umreth, Gandevi, Mandvi, Bulsar, Bardoli and Chikhli where the above communities are found to reside in large numbers.

As these products do not have local markets the weavers of Broach are all outworkers who weave petticoat cloth on behalf of the local dealers and get remuneration on piece rate. During the pre-war days they used to obtain 12'as for weaving a piece 24 yds. \times 31". Thus by working for 8 hours a day they used to earn Rs. 7 to Rs. 8 per month. Though their remuneration has been three times more during these days it is simply due to the fillip given by war-time boom. When normal conditions are restored the demand for this cloth is bound to be adversely affected as the mills and the powerloom factories have now started the production of cheaper substitutes.

(iii) *'Jajam' or Durrie weaving*: Out of 600 looms at Kanodar about 400 to 450 are concentrating in weaving 'jajam' or durrie and cloth for bed cover. For this they usually require 2/20s mill yarn. Even Navsari, Bilimora and Palanpur merchants pay occasional visits to Kanodar to purchase this

cloth which is generally 60 yds in length and 56 inches in width. It takes 5 days for a weaver to weave this cloth which cost him Rs. 9-6 for yarn and colour and obtained Rs. 11-4 as its selling price. He therefore, earned Re. 1-14 as weaving charges in 1938 and his monthly income was Rs. 10 to 11. After the outbreak of World War II the demand for this cloth has greatly increased. Consequently the income of the 'jajam' and bed cover weaver has risen to Rs. 28 to 30 per month. But when the textile mills begin to cater to the needs of civilians (with their entry into the field) their margin of profit is likely to be curtailed. Besides, of late some of the power-looms have also taken to the weaving of bed cover cloth and the cotton durries which foretell the future competition between the factory and handloom goods.

(iv) "*Rajjai*" or padded Quilts weaving : If Kanodar is known for making of bed and pillow cover cloth, Broach is known for cotton padded quilts weaving. This industry has however fallen on evil days, and most of the 'rajjai' weavers have taken to carding as their principal occupation. The mill-made foreign woolen blankets and rugs have acted as cheap substitutes; hence the demand for 'rajjai' has gone on decreasing day by day.

By working for 8 hours a day a weaver earned Rs. 12 to Rs. 13 per month with the help of his family members in 1938, while he used to earn Rs. 25 to Rs. 30 per month for the same in 1929. Though after the out-break of World War II his income has risen from Rs. 12 to Rs. 25 per month (to the level of his earnings in 1929), this increase is not likely to revive the demand for 'rajjais'. The future of the industry is not at all bright and there is every possibility of decrease in the number of the present 10 padded quilt weavers at Broach.

(v) *Cotton Tape or 'patti' Making* : Cotton Tape or 'Patti' making is mostly confined to Ravalias (that is, to Dhed Garodas or to the preceptors of the Untouchables) in Gujarat. It is so because the earning from this occupation has gone so low that the weavers of the cotton tapes live on the alms which they get from their 'jajmans' or deciples. Their earning was hardly Rs. 4 per month in the year 1938.

Wooden cots require this 'patti', but as they occupy more space, they are found very inconvenient for use by the middle

class people residing in the urban areas. Therefore Kanodar, once the leading centre for 'patti' making in Gujarat, is no longer remembered today and the various other 'patti' making centres of Gujarat also show a great decline in the number of weavers and their output. There are hardly 50 patti weavers at Valam, 40 at Umreth, 30 at Radhanpur, 20 at Ahmedabad, 20 at Nadiad and 19 at Kanajari.

The demand for 'patti' is likely to fall and hence it is, not possible for us to suggest ways and means to develop its markets. However, if improved technique is provided to these patti makers of Gujarat, with better looms and better equipment they will surely be able to earn something more.

Weaving from Mill Wastage Yarn : The weavers at Vadtal, Karamsad and a few centres in the Ahmedabad district like Sarkhej use mill waste yarn in weaving fine Saris. They purchase bobbins of waste yarn, weave suitable cloth from it and sell it in the adjoining markets. As such 40 looms of Vadtal, 12 of Karamsad and 7 of Sarkhej seem to be working satisfactorily. These independent weavers are found comparatively better off than their fellow brethren elsewhere. They invest their own money in the purchase of yarn and out of it weave Saris, towels, and rough khaddar. However, there is a limit to the availability of mill waste yarn and these weavers do complain that they do not get it in enough quantity.

Conclusions : It should be realised at the outset that handloom weaving has declined a great deal more in Gujarat than in any other part of India. It is so because Ahmedabad is now the metropolis of India as far as the large-scale textile industry is concerned. Thus the growth of textile mills and powerloom factories is greatly responsible for the decline of handloom weaving.

The advantages of labour are definitely in favour of weaving with the help of a powerloom rather than a handloom. While an Indian millhand can turn out 70 lbs. of coarse cloth per week, a handloom weaver turns out 50 lbs. of coarse cloth per week. According to the data supplied to us during our investigations into the conditions of the industries of the Thana district 4 Saris can be produced on a powerloom per day by employing 2 weavers, while on a handloom a weaver can produce

only one such Sari in 2 days*. It being so handloom mostly supplement mill production by producing special kinds of goods which cannot be woven with advantage in textile mills. They also help in (i) utilizing waste yarn rejected by the mills and (ii) consuming the surplus stock of spinning mills which need not be sent out of the country.

The outworkers in this handicraft are mostly in the clutches of the money-lenders—who are usually the cloth merchants. These merchants make good profit from (i) the retailing of yarn to the weavers and also from (ii) the purchase of cloth from the weavers. The independent weavers suffer because they carry on a complex series of operations without recognising the advantages of subdivision of labour. In order to improve the lot of the existing weavers, Co-operative Societies should be established for (i) providing yarn to them at comparatively cheaper rates and (ii) organising the sale of their products in a profitable manner. Efforts should thus be made in the direction of saving middlemen's profit for these weavers who are already working under conditions of distress, for they do not obtain satisfactory remuneration from this industry. Ultimately this handicraft is bound to suffer elimination at the hands of the factory.

* The Bombay Economic and Industrial Survey Committee Report, Vol. II, Thana, p. 16

CHAPTER V

INDUSTRIES CONNECTED WITH TEXTILES: THE GOLD THREAD INDUSTRY

Raw Materials : Surat is the only Gold Thread manufacturing centre of Gujarat. The raw materials required by this industry are cotton yarn (mercerised and of very fine count), silk yarn, gold and silver. Of the cotton and silk yarns required to manufacture gold thread, silk is the important material because it is very fine and smooth.

Before World War II Surat imported silk yarn to a large extent from France, Switzerland and Germany. It imported silk, yarn of about Rs. 2 to 3 lakhs per year from France. It also imported Chinese as well as Japanese silk yarn, but that yarn was not suitable for weaving fine count gold thread of 2000 yards or more from one tola weight of silver. Hence Chinese or Japanese imports were chiefly meant for the manufacture of silk cloth and silk brocade. During World War II only Mysore and Kashmir have supplied raw silk in hanks to the Surat manufacturers who get it dyed locally.

Another more important and more valuable raw material for manufacturing 'jari' and 'kasab' is silver. The Surat manufacturers purchase silver from the Bombay market. The local pre-war estimate of the consumption of this material by the industry was on an average 10 bars, that is 30,000 tolas of silver per day, amounting to 9 lakh tolas per month. The Surat manufacturers use Surat made silver wire if they have to make thin wire only to the extent of 1200 yards from one tola weight of silver. If they require finer thread measuring 1600 to 3000 yards from one tola silver they usually manufacture it from silver wire imported from Benares. Benares wire is stated to be of the finest quality and it gives a very fine quality thread. The Surat manufacturers send silver ingots to Benares and pay the wire manufacturing charges at some fixed rate. For loss of weight during the manufacture they give an allowance of one per cent to the Benares contractors.

Main Products : Main products of this industry are:

- (1) 'Kasab' or thread and (2) 'Jari' or silver spirals or wires.
- (1) Real thread is made of precious metal. It means silver or gold-gilded silver wire wrapped over silk (or cotton)

yarn. Various uses of 'Kasab' : Gold thread bobbins are freely used in brocade work, that is in making gold thread attires, embroidered laces, cut-pieces for bodice, caps, etc., and also in making Sari borders. Half-fine thread is made of silver plated copper. It is very cheap when compared to real thread and it turns black. It therefore competes severely with real thread in price. Being 2½ to 3 times cheaper it works as a cheap substitute.

(2) Other important products of this industry are : 'Jari' spirals and wires. 'Jari' spirals of very thin flattened or round wire fetch more value than an equal weight of real thread, because the thread as it already signifies contains silk or cotton yarn. According to their varieties 'Jari' spirals are termed Sadi, Salma, Kangri, Chalak (Zic), Gokharu, etc. They are either flat or round and they vary in their thinness. Out of these jari spirals, the Surat manufacturers make very tiny circular discs with a small hole in the middle. If this product is made from round spiral, it is known as Tiki and if from flattened wire, it is known as 'Katora'. 'Katora' is however made with the assistance of special dies. Jari Wires or Lametta are thin silver wires required in embroidery weaving and in making knitted laces, Sari borders and 'Jari' attire. According to the thinness of wire the varieties manufactured are known as Tasa, Mukhas, Badlo, etc.

All sorts of spirals fall within this group of Jari products. It is still found very difficult to manufacture such spirals out of half-fine wire as at high speed the copper wire breaks. Tiki, Katora, etc. are also not made so successfully from half-fine metal. It is therefore in Lametta produce or in Jari wire products like Tasa, Mukhas, Badlo, that half-fine metal products act as cheap substitutes.

The Technique : According to the old practice, after melting silver the Pavthawallas used to draw 10 to 12 feet wire from it with the help of a wooden roll (known as 'jantar' or 'pavtha') turned by hands and legs. Wire drawing by the above hand process was carried on in about a hundred houses of 'Pavthawallas' upto 1924. About 1000 workers were engaged in wire making during those days. But after the introduction of machinery run with electric motive power practically all the 'pavtha' owners are rendered unemployed. After getting 10 to 12 feet long wires (each of them one tola

in weight) from the 'Pavthawallas', the Surat merchants used to send them to wire drawers known as 'Tanias' to draw thinner wires from them. About 250 workshops giving employment to about 3000 workers were formerly existing at Surat. But after the introduction of wire drawing machines* in 1925 run by electric motive power, only 300 to 400 workers are required for the same output.

Wire flattening was also carried on by the hand-process when 'Chapadias' or wire flatteners used to take a number of wires on a polished anvil and strike them with a polished hammer. It is reported that one wire flattener was able to meet the requirements of flattened wire of four spinning machines. But now the rolling mills have practically dispensed with his services. Wire flattening is now confined only to flattening of coarse wire, that is, in making 'Mukhas' which is one of the 'jari' products grouped under Lametta. Rolling mills (or wire flattening machines) known as "Chapadvana Sancha" have been equipped with well polished small rolls revolving at a very high speed assuring better output at cheaper cost. European machines which are imported for this purpose possess automatic arrangement. They stop when the wire breaks and they are so devised as to take a measured quantity of wire on spools.

After the wires are flattened by rolling mills they have got to be transferred from one bobbin to another and ultimately they are put on special bobbins for the market. Formerly this was accomplished by hand winders. Handwinding is resorted to even now, if it has got to be done on a small scale. But spooling machines (or Tar-bharvana Sancha) are now introduced at Surat, as a number of large rolls daily operating at this centre bring out a very large output of wires.

The finish of flattened wire, however, depends upon the polish of the flattening rolls which are therefore required to be kept well polished. Hand polishing was possible in case of small rolls in the past. But as a number of large rolls are in daily use at Surat, polishing of rolls has got to be accomplished by a polishing machine.

In making 'Kasab' or gold thread, flattened wire collected on small spools is spun round cotton or silk yarn. Formerly wire

* Tar-tanwana Sancha.

was spun manually round the yarn. But now spinning machines (Vintalvana Sancha known as 'Tar-Kas-na Sancha') have displaced hand spinning at Surat. Some of the machines are taking 60 thread at a time in Europe. It is therefore necessary to go on constantly improving the gold-thread spinning machinery by keeping into touch with the changes in the technique at Lyon and other places in order to be able to successfully withstand their competition in the world markets. Most of these spinning machines are manufactured at Surat and usually workers themselves are the owners of these machines.

Another important change introduced at Surat is in the method of gilding silver wire. In order to manufacture real gold thread or 'Soneri Kasab' (actually it is gold-gilded silver thread), hot plating process was in existence from early times. Instead of this hot plating process, electro-plating process is now introduced which has reduced the cost of labour and halved the amount of gold required for gilding purposes.

Besides, by introducing the use of a German dye 'Cori phosphine' as a substitute of gold for gilding purposes a great economy is made in the production of half-fine yellow thread. Silver gilded copper wire is passed through a dish containing the solution of 'Cori phosphine' and during the process the yellow-colour sticks to the thread and converts it into 'Soneri Kasab'. There is therefore no necessity to gild the thread with gold. This substitute has made it possible for the Surat Manufacturers to get half-fine thread at comparatively reduced cost.

Capital Invested : It is very difficult to give the exact figure of capital invested in the machinery in this industry at Surat. However it is possible to form some approximate idea from local inquiries. The following figures give only a rough idea as to the number of factories or looms and capital invested therein.

Particulars	Capital Invested (Rs.)
6 Large wire drawing factories having complete wire drawing machinery for a maximum output of 10,000 tolas of silver wire per day. These factories manufacture first preliminary wire to the fineness of 10 'gaj' or 12 ft. per tola from silver ingots supplied	3,60,000
12 to 15 factories manufacturing wire from 10 'gaj' or	

20 ft. per tola to 1200 ft. per tola	24,000
400 pairs of Rolling Mills (wire flattening machines or Chapadvana Sancha). For three spinning mills generally they keep one pair of rolling mills. These mills are mostly owned by spinning factory owners (known as 'Tar kas-na Sanchawalas'). In all about 400 pairs	80,000
500—600 Spinning Factories spinning gold or silver thread containing in all about 1200 Spinning Machines	3,60,000
3000—3500 Looms of various types for making embroidery laces including underpick looms (about 120) for making embroidery trimmings and gota looms (about 200) for manufacturing plain gold thread flat braids	50,000
20 Braiding Machines	2,500
100 Small gold gilding factories for gilding silver thread	30,000

The above estimate does not include the cost of implements like hammers and anvils required for making Tiki, Katora, etc. Or in other words, the estimate of the cost of equipments and instruments necessary for the production of those articles which are still on handicraft basis. Even then a conservative estimate still shows that about Rs. 7 lakhs to Rs. 8 lakhs have been invested in the plant and equipment.

As regards capital invested in this industry, the pre-war total output of this industry stood at about Rs. 80,00,000*. If analysed further the Surat manufacturers' estimate was as follows :—

A. Real 'Kasab', that is, real gold and silver thread	Rs. 45,00,000
B. Jari : (a) Spirals..Chalak 5,00,000 (b) Lametta..Salma, Sadi, Kangri as well as Tasa, Lachha, etc..... 10,00,000	15,00,000
C. Tiki, Katora etc	20,00,000

Total Rs. 80,00,000

Surat's annual output was estimated at Rs. 1,00,00,000 in

* In addition Surat's annual output of imitation thread was estimated at Rs. 5 to 7 lakhs and of imitation tiki (jari) about Rs. 10 lakhs.

1927*. The output did not show great decline which it ought to especially in the period after 1929-30 better known as the period of World Depression. Times of depression affect luxury crafts the most. If the decline in the output (about Rs. 20 lakhs) was not as great as was feared considering the severity of the depression affecting India, it was on account of the Gold Thread Industry (Protection) Act, 1931 which levied a desired check upon the foreign imports and therefore widened the home market for the indigenous products of this industry.

*Conditions of the Gold Thread Industry
vis-a-vis the Foreign Imports from
1930-31 to 1937-38*

As a result of the recommendations of the Tariff Board, the Government of India gave protection to this industry for a period of 10 years in 1931†. Accordingly 50 per cent ad valorem duty was levied on "silver thread and wire (including the so-called gold thread and wire mainly made of silver) and silver leaf, including also imitation gold and silver thread and wire, lametta and metallic spangles and articles of a like nature of whatever metal made".

On account of this protective duty the imports of gold and silver thread declined from Rs. 20,38,129 in 1930-31 to Rs. 6,55,656 in 1931-32 whereas the imports of lametta had fallen from Rs. 6,26,550 in 1930-31 to Rs. 4,60,420 in 1931-32. Thus the protection had an exemplary effect on the imports.

The table on p. 116 gives the actual figures of imports between 1930-31 to 1937-38:

After 1931 the foreign import was mostly confined to half-fine thread and wire products. As already pointed out the semi-fine thread never turns black. It is also as lustrous and polished and fine in quality as the real thread. Besides it is

* Mr. G. P. Fernandez : Report on Art-Crafts of the Bombay Presidency, 1932.

† This protection was further extended to the gold thread industry on the same basis of 62½ p. c. ad valorem duties upto 31st March, 1942 and thereafter it is extended upto 31st March, 1947 with 75 p. c. ad valorem duties on imports.

Gold & Silver Thread Imports in India*		Lametta Imports in India	
Year	Value (in thousands of rupees)	Quantity (in thousands of lbs)	Value (in thousands of rupees)
1930-31	20,38	4,64	6,26
1931-32	6,55	3,67	4,60
1932-33	9,97	4,47	6,10
1933-34	6,45	3,54	4,19
1934-35	4,64	2,67	3,05
1935-36	5,14	4,97	4,25
1936-37	3,71	3,18	3,01
1937-38	4,20	2,42	2,48

2½ to 3 times cheaper. It therefore acts as a cheap substitute to real thread. Realising full well the potential danger of competition that was in store for our indigenous products after the removal of protection, the Department of Industries, Bombay, carried on experiments during the years 1940, 1941 and 1942 to manufacture half-fine thread. At last they succeeded in their attempts and the Surat Manufacturers have, since 1942, begun to manufacture under their supervision half-fine thread of 1600-2000 yards length from 1 tola copper-wire.

As yet the foreign manufacturers have not succeeded in manufacturing half-fine thread finer than 2200 yards per tola of copper wire because the copper wire breaks when further attempts are made to add to its fineness. Therefore before the protection is removed the technique of manufacture still needs to be improved and instead of 2000 yards' length the Surat manufacturers must also be taught to produce 2200 yards' length of semi fine wire from 1 tola copper wire. The scale of production at Surat should also be extended in order to assure all the advantages of the large-scale production.

Labour : This industry employed about 19,000-20,000 workers in 1927†. As the demand for gold thread depends very much on general prosperity and to some extent is seasonal (as its market improves during the marriage season) the out-

* Inclusive of imports by postal packets referred to Collectors of Customs for assessment.

† G. P. Fernandez: Report on Art-Crafts of the Bombay Presidency, 1932.

turn during the course of the year varies considerably. Under the circumstances, in the opinion of the Tariff Board Committee if the estimate about the number of workers employed in this industry was based upon the number and capacity of factories, it was bound to be misleading. They therefore preferred to base their conclusions upon the local inquiry. In this connection during our investigations in 1938 the Surat manufacturers gave us the following estimate about the number of workers engaged in the industry.

Particulars	Approximate Estimate Persons engaged
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In initial stages and 'kasab' manufacturing

'Tania's' drawing silver wire by 'Jantar'	
(hand process)	100
In wire drawing	400
In wire flattening	1,000
Gold Thread Machines (Spinning Machines) ..	1,000
Gold gilding factories (about 100) giving employment to about	1,000

In real 'jari' products :-

Tiki making	200
Katori making	25
Chalak (Zic) making	350
Tasa (badla) making	25
Salma and Kangri making	20

In Laces, borders etc.:-

Badla (Jari-Lametta) border making	1,300
Kasab border	500
Indori border	500
Kasab-Kinari-Laces	1,300

In embroidery weaving 3,500

In Kinkhab weaving (this is chiefly in the hands of the Benarasi weavers at Surat)	
(i) Main Benarasi Weavers	300
(ii) Small boys (attending the looms for warping and wefting processes)	500

Jari work : (a) Tiki and Katora making:

There are about 25 Karkhanas engaged in 'Tiki' and

'Katora' making which in all employ about 200 to 300 workers and pay them on piece rate. The workers are mostly Dublas coming from the adjoining villages. Generally they come to Surat in the morning and return to their villages in the evening.

The equipment of the Karkhandars of these products is simple and not at all costly. It mostly consists of anvils, hammers, tongs and needles.

From one 'val', that is $1/32$ tola weight of silver, the workers make 80 tikis. It is however reported that at Calcutta the workers make 125 tikis from the same quantity. But labour being cheap at Surat tikis are exported to Calcutta. One tiki maker can make tikis out of 15 tolas in a day if he works for 8 to 9 hours.

During the year 1938 they used to get Rs. 3 to Rs. 4 per 100 tolas of tiki but the war-time inflation and rise in prices have made it imperative for the Surat manufacturers to give them more remuneration. They are now getting Rs. 9 to Rs. 10 per 100 tolas. In this case if a tiki maker gets work throughout the month he can earn about Rs. 50 to Rs. 55 per month. But he hardly gets work for about 8 months in a year.

(b) Spirals and (c) Lametta products manufacturing :

There are about 50 Chalak making, 3 to 4 Kangri making and half a dozen Sadi and Salma making concerns at this centre. Before 1930 there were reported to be 160 concerns engaged in Chalak making. But as the wearing of gold thread embroidered caps and cloth became out of vogue their number has gone down. The raw materials required in these Karkhandas are silver wire, white zinc, glycerine, etc. Their equipment is mostly $\frac{1}{2}$ H. P. Rolling Machine for pressing the wire and manufacturing out of it the Jari spirals viz. Chalak, Salma etc.

Workers engaged in these concerns are mostly Golas and Dublas and majority of them are addicted to drink. They are paid on piece-rate according to the weight of the manufactured jari spirals. They hardly earned Rs. 7 to Rs. 8 per month in 1938. But now they are getting Rs. 20 to Rs. 22 per month.

Embroidery Weaving and Lace Making

Lace trade is carried on by the different communities at Surat. But its weaving is solely in the hands of Khatri community. These Khatri decline to teach the art of lace weaving to

others and they have preserved their trade secret (just like the Sujjani weavers of Broach) by their organisation and caste rules. They are today proud that their 'Indori' borders of artistic designs and their 'Kasab' and 'Zic' laces are so attractive that they stand second to none in the world.

Laces are generally classified as (i) embroidered, (ii) knitted, (iii) braided and (iv) woven. These 'jari' or 'lametta' embroidered laces are known according to the particular jari spiral from which they are made. They are known as 'Karchobi' if made from 'Chalak', 'Zardosi' if made from 'Salma' and 'Kamdani' if made from 'Kangri'. These embroidered laces are mostly hand-made as the materials are too fragile to be worked on machinery and the designs too many to permit production on large scale.

In addition, woven laces are also manufactured on a considerable scale at this centre. They are woven on very small looms varying from $\frac{1}{4}$ " to 3" in breadth. According to their designs these woven laces are given various trade names such as 'Gota', 'Dhamuk', 'Anchal', 'Kinari', 'Badla', etc.

It is however necessary to note that about 3,500 embroidery weavers and in addition about 3,600 lace and border maker, hardly get minimum subsistence from their occupations. Besides, more than half the number of embroidery weavers come to Surat from the adjoining villages. They work at Surat throughout the day and return to their villages in the evening. In the rainy season most of them work in the fields as agrit cultural labourers. Those weavers who daily come to Surae from the mofussil areas are mostly 'Kanbis' and 'Dublas' whils most of the local embroidery weavers and lace makers are Khattris and Golas. These people are illiterate and they are paid on piece-rate. After 1925, with the introduction of machinery a number of hands began to be thrown out of employment from the various cottage crafts of this industry. Therefore cut-throat competition ensued among these workers to obtain work and they began to accept lower and lower remuneration. It being so, by working for 8 to 9 hours they hardly earned 3 to 4 as. per day in 1938. After the outbreak of World War II they are getting on an average 9 to 10 as. per day but in order to safeguard their interests during the post-war slump there is a necessity of forming their Association.

Brocade Work

Brocade work or 'kinkhab' weaving is at times also known as metal cloth weaving or gold attire making. This is considered to be the highest, the best and the costliest product of this industry. In the Moghul period Ahmedabad, Surat, Baroda, Patan, Visnagar, Magroda, Unza, Upera and Gozaria were very well known centres for brocade work in Gujarat. But the last six centres have now faded into insignificance and cut-piece 'kinkhab' cloth for 'cholis and 'kanchalis', that is for making blouses is rarely made at these centres. Once Ahmedabad was the leading centre for brocade work in Gujarat. In this connection Surat perhaps ranked second to Ahmedabad. Mendelslow writes that kinkhab was sold at 5 crowns per yard when he was in Ahmedabad. All the foreign travellers including Prince E. Gokhtomsky who visited Ahmedabad in 1890 have carried away glorious and monumental impressions of Ahmedabad 'kinkhab' with them. The demand for 'kinkhab' came from Bombay, Baroda, Poona, Gwalior, Rajputana, Mewad, Sind, Afghanistan, Arabia, Persia and China. The Muslim community of Ahmedabad invariably used it for jackets and waistcoats. But the industry declined to a large extent with the disappearance of the Royal Courts and nobles from Ahmedabad. The change in fashion and the growing poverty of the Indian masses are also responsible a great deal in reducing the demand for kinkhab.

As a result there are now only two families engaged in jari cloth weaving that is used in making gold thread attires for the temple idols. Out of 700 Modhiya looms hardly 25 are now weaving kinkhab borders (that is modhiyas) for 'cholis', 'kanchalis' and 'kabjas', that is, for blouses. In Surat only 15 families are weaving kinkhab cloth for jackets which suit the requirements of the Muslim community. The orthodox class still favours the use of kinkhab cloth and embroidered piece-cloth during the auspicious occasions like marriage festivals. Their children put on 'jari' caps, and gold thread robes or frocks and their females wear gold thread Saris (Ambaras) and blouses ('kabjas', 'cholis', etc.). It being so, there are still 300 Benarasi weavers engaged in the production of the above articles at Surat. These weavers get orders from local merchants and in rare cases they obtain direct orders from the customers. They

require small boys to attend to the warping and wefting processes (for vano and taño, that is, 'kantho kadhava' and 'dor khenchva'). To these small boys they used to pay 2 to 3 as. in 1938 but now they pay to them 5 to 6 as. per day. Some check on the employment of these young boys is necessary. It is true that to the poor families their small income is a blessing. But being employed at very young age, they practically ruin their career. They remain uneducated, become fatalists and get addicted to smoking, drinking and other vices which prove to them a source of relief from their day's hard toil in the beginning of their career.* The very idea of employing boys of 6 to 10 years will be very shocking to the people of the western countries.

The expert weaver who employs these boys to help him used to get Rs. 13 to Rs. 15 per month before the War but even this he did not receive all the year round, because for about 2 to 3 months in the year he remained idle. After the out-break of World War II, on account of rise in prices he is paid more and now his monthly income stands at Rs. 35 to Rs. 40. But viewed from the point of view of labour he puts in and the exactness of the design that is woven by his steadfast eyes, this remuneration is very low.

Conclusion : The above facts bring home to us that in the gold thread industry most of the products are made on a cottage basis. Therefore the bulk of those engaged in this industry are labourers and outworkers. Only a couple of hundreds are Karkhandars and ultimately all the products of this industry pass to the traders about 500 in number who export them to outside centres. These merchants remain pretty busy solving the marketing problems of the products throughout the year, while the small factory owners are not such experts nor have so much finances as to introduce new changes in the technique of this industry. Realising this the Tariff Board recommended in 1930 that "at a comparatively small cost a centre could be provided at which improved methods could be demonstrated and instruc-

* At Surat today about 500 boys are helping in warping and wefting processes of weaving, while about 400 boys are engaged in inserting thread in the spirals like Chalak, Salma, etc. (i. e. in 'dora parovava'), so that these spirals might not lose their shape or lustre.

tions given in the use of better machines and processes".* The Bombay Government should therefore provide such a centre and thus evince interest in the well-being of this industry which employs about 11,000 workers at Surat.

Public taste has undergone a vast change and the use of plain Saris with little embroidery work has become the current fashion. Therefore in order to suit the modern taste necessary changes should be made in the designs of embroidered pieces and borders.

Detailed investigations should be carried out to know the consuming capacity of each market for every product of this industry. While doing so considerations of price, quality, design and delivery should remain uppermost in the mind. In this connection a small Bureau should be established by the combined efforts of merchants and the Government. This Bureau should be in the charge of a research scholar who can gather statistics analyse the trend of the markets and can put at the disposal of the merchants up-to-date and valuable information regarding the marketing conditions. Besides being a research scholar, it would also be desirable if he is an expert technician having connections with the Department of Industries, Bombay. If so he can easily persuade the Government technicians to carry on experiments for finding out the nature of improvements immediately required in the various processes of this industry at Surat. It will also be very easy for him to obtain advice from the Government experts about the proper mixing of chemicals for dyes.

The French products catch the consumer's attention because of the utmost care taken by the French manufacturers in their finish. They take great care in packing, making hanks, bundles or packets and applying labels. The Gold Thread Association of Surat can with advantage enforce rules and regulations in this connection. In all these processes as far as possible application of hand should be avoided so that the luster of the finished products might not diminish. For flattening the wires satisfactory rolls are not manufactured at Surat.† The Govern-
* Vide their Report page 24, para 29.

† In this connection it is reported that in Europe hardly 2 rolls out of 10 manufactured turn out entirely satisfactory. These rolls are either
(Contd. on next page)

ment workshops should therefore undertake experiments so that the right sort of rolls may be manufactured at Surat.

Silver and copper wires are required in the manufacture of gold thread and half fine thread respectively. Both these metals are imported from foreign countries. Therefore as long as the duties on the imports of silver and copper are continued, a fairly high duty shall have to be imposed on the imports of gold and half fine products.

Tape and Lace Making

Tape making is an important branch of the textile industry in Ahmedabad. Here the tape manufacturers try to meet the demands of local textile mills. Usually lace and tape making go hand in hand and it is a cottage as well as factory type of industry at Ahmedabad.

About 20 families are engaged in lace making on cottage basis at this centre. Their equipment is hardly worth Rs. 8 and the yarn utilised by them is generally 6s. The average production of a family per year is about 36 maunds lace which cost Rs. 288 and was sold at Rs. 540 during the pre-war days. Thus the average income per family was Rs. 20 in 1938. During the World War II on account of the rise in (i) the demand for lace and (ii) the price of the raw materials, the income per family has risen to Rs. 40 per month.

Raw Materials, Output, etc. : Raw materials required in lace and tape making are cotton and artificial silk yarn which are purchased locally. About 6 or 7 tape making factories have started manufacturing tapes by about 1937. The largest tape making factory possesses 35 lace making machines while others have on an average 20 to 25 machines. Each machine on an average costs Rs. 30 and it is run by electric motive power. The average annual output per machine is stated to be 4,800 lbs. of tape.

Finance : The largest factory has invested about Rs. 50,000 in the equipment while others have invested Rs. 10,000 to 15,000

hardened too much or too little. In the former case, they lose grains of metal and get covered with pits which hold up the wire and break it. In the latter case, they are cut by the wire and these canals scrape the wire and hold it up and break it. These rolls are manufactured out of special steel and even then in manufacturing them a special process of hardening the steel is resorted to.

each. No indebtedness is observed among the factory owners because they get ample credit facilities from the yarn merchants.

Labour : In all about 60 labourers are working in these factories among whom young boys are in majority. One boy attends to 15 machines and generally every factory employs 7 or 8 boys to attend to the machines. The pre-war rate of payment to these boys was Rs. 5 to 6 per month. But now they are paid Rs. 18 to 20. Each factory needs the help of one mechanic who was paid Rs. 20 per month in the pre-war days, but now he gets Rs. 50.

Market : Tape is in demand by the local mills while lace finds market practically all over India as it is widely used by the female folk in their garments. There exists little internal competition in lace in the local markets as Ahmedabad hardly consumes 5 per cent of the production and the bulk is sold in the upcountry markets.

Future : The lace making factories have started tape manufacturing in the year immediately preceding the war. Before this they produced laces. During the pre-war days foreign tapes were very popular in the Ahmedabad market as they were sold at Rs. 4 per 1000 yards while the same variety local tape was sold at Rs. 5. With the out-break of war the industry began to do well as its product did not find any foreign competition. But it is very likely that the Ahmedabad industry might not be able to face the foreign competition in the near future. The economics of this industry therefore demands comparative study of the technique and working of this industry in other countries. The cost of production requires to be reduced in order to withstand foreign competition and to put this industry on a sound footing.

Cloth Button Making

Cloth button making was once done on a considerable scale in Gujarat. But the imports of machine made cheap buttons of various other material caught the public attention in the beginning of the present century. They changed the public taste in their favour. Therefore khaddar or cloth button making fast declined. Still however Vapi, Borsad, Kapadvanj, Visnagar and Radhanpur are the important button making centres in Gujarat where in all about 125 to 150 women are engaged in this home industry.

Borsad buttons are superior to those of Kapadvanj. At Vapi gold thread is also used in making khaddar buttons; therefore Vapi buttons are of the best quality. These cloth buttons are made from old rags and about 40 dozen buttons can be made by working for 8 to 10 hours.

The adult females who make these buttons are also helped in their work by their young daughters and sons. For cloth button making is not at all a difficult art. From rags and thread worth 2 annas they make 40 dozen buttons which they used to sell to the local tailors at 5 as. in 1938. Their selling price was 2 dozen per pice. But after the out-break of World War II they are getting 10 as. for 40 dozen buttons and their income is about Rs. 18 per month.

During the War imports of foreign buttons practically ceased. Hence the price of existing foreign stock in the market got unprecedented rise. Therefore cloth buttons regained much of their lost markets. The press buttons have also found favour with the public during these days of scarcity. But in order to safeguard the interests of this industry these button makers require to be taught the art of making very stiff, attractive and durable buttons which may neither loose their shape nor break during washing.

Rope, Twine and String Making

This industry employed 4,104 persons in Gujarat in the year 1931. Important centres in this connection are Ahmedabad (966), Palanpur (936) and Surat (477). These are mainly rural industries. However, for coir rope making Ahmedabad, Broach, Hansot and Surat are very important centres where in all about 500 'Kharva' or 'Khalas' women are engaged in this industry. The male members of the community are normally engaged in fishing and just before the rains they branch into roof-repairs and re-tiling.

Rope making is not at all a difficult art. After purchasing cocoanut husks from local markets, they soak them in water for two days. They hammer the wet husks, remove the outer covering and dry the separated fibres. Finally they make ropes by twisting these fibres by hand. For making 30 feet rope 2 days are required in twisting. The income of a rope-maker was hardly Rs. 3 to Rs. 4 per month in 1938 while now it is about Rs. 9 to Rs. 10 per month.

These rope makers are not aware of the twisting machines in use in rope-making at Travancore and Cochin. Before the War they grumbled about the heavy inroads of cheap ropes in Gujarat markets with which they could not compete. Therefore twisting machines ought to be made available to them. This will not only widen the markets for their ropes but will also increase their income by yielding greater output in comparatively shorter period. In the interior parts of Gujarat generally the farmers themselves make ropes to meet their needs of agriculture. Among these interior areas the prominent centre is Borkheda in the Panch Mahals where about 500 Bhils, when relieved from their occupation as agricultural labourers, engage themselves in making 'Bhindi' or 'San' ropes. But as already mentioned above the ropes are twisted by hand and therefore there is an urgent need to supply them with twisting machines. These Bhils also make 'Jotar', 'Nara', 'Gofan', 'Mhora', 'Mod', 'Athar', 'Pala', 'Poth', 'Chhalka', etc. required in the cart transport or for pack bullocks. In order to increase the demand for their products, they earnestly appeal for encouraging the cart-transport. However, in these days of fast vehicles as cart transport is fast being replaced by the motor transport, it is very difficult to suggest the ways and means to develop the markets for these products.

Dyeing and Calico Printing

The census returns show that 4,613 persons were engaged in dyeing and printing cloth and in other occupations connected with the preparatory processes of textile manufactures in 1931. They also give the clue that Baroda Division (1339), Mehsana Division (629), Ahmedabad district (531) and Palanpur State (371) are the important zones around which these activities are mainly centred.

As for dyeing, history bears ample testimony that Broach district was the home of this industry in Gujarat so long as synthetic colours were not invented and indigo colours were in demand. In the city of Ahmedabad also dyeing and calico printing developed very early as they did in Jaipur and Gwalior.* However, with the introduction of dye-works in the textile mills and the establishment of separate dying

* S. M. Hadi : *A Monograph on Dyes and Dyeing in the North-Western Provinces and Oundh.*

and bleaching works, the dyers were relieved of most of their work. Consequently, now they are hardly found in clusters in any part of Gujarat. Every big town claims 2 or 3 dyers* who practically dye old clothes. From handloom products these dyers also get for dyeing a percentage of handwoven white cloth known as 'gaji'.

As for calico printing, Ahmedabad was and still remains the leading centre of Gujarat. Printed calicoes of this place formed an important item in the East India Company's exports, but their importation into England was prohibited by the Act of 1700 as they competed with the woolen and silk goods of England. Later on, calico plants came to be introduced in the textile mills of Ahmedabad and their introduction gave a severe blow to the calico printers who thenceforward had to depend mostly upon the handloom products for printing. The severe setback will be easily brought home when it is realised that out of 2,400 calico printers at Ahmedabad only 600 are engaged in printing today. The present Calico Mills of Ahmedabad was a calico printing concern in its pre-mill days. The various centres of Gujarat once known for calico printing but now faded into oblivion are Mahudha, Kathlal, Kapadvanj, Modasa, Rajpipla Umreth, Gandevi, Vijapur and Padra, while its present important calico printing centres are as under :-

Centre	Number of Calico Printers	Bales (white and coloured) they print
Ahmedabad	600	3000-4000
Vadnagar	300-400	1500-2000
Vasna	250	800
Rajpur	200	600-700
Kheda	150	7500 ('kodis')
Palanpur	25 houses	200-250

Varieties of Printing : They usually print Saris mainly (1) 'Chhidris', (2) 'Gawans' (3) 'Saudagiri' and (4) 'Bangala'. Moreover, they get bed sheets and 'chhints', that is cut-piece cloth for blouses, frocks etc. and various Saris for design-printing and bordering. 'Chhidris' and 'Gawans' are used by

* There are 49 dyers at Ahmedabad, 15 at Surat, 7 at Vapi, 6 at Radhanpur, 4 at Idar, 4 at Palanpur, 4 at Broach, 4 at Dahod, 4 at Zalod, 3 at Nadiad, 3 at Bardoli, 2 at Rander, 1 at Sami, 1 at Anand, 1 at Pardi, 1 at Karmasad, 1 at Borsad, etc.

the lower classes in Gujarat. While 'Bangala' cloth is used for making petticoats. The most difficult and important is the art of printing Saudagiri Saris which are exclusively used by the female folk of Siam and this Sari printing is at present the speciality of Ahmedabad. The cloth required is obtained locally and so also the colours and chemicals.

Equipment : The equipment required by the calico printer includes a printing table with grey covering, a bowl full of colour, a wooden frame, a thick cotton stamp and the wooden stamps. The wooden stamps are made locally and according to their wear and tare they require to be changed from year to year. Besides every now and then the calico printer has to purchase new stamps with new designs in order to meet the public demand and the change in fashion. Their prices vary according to their designs, and they range from Rs. 10 to Rs. 50 each.

Division of Labour : In printing the cloth various complicated processes are involved. One Karkhandar or one artisan cannot undertake all of them. On an average one Karkhandar therefore employs 15 to 20 artisans to help him in the various processes. The various colours are mixed in the required quantity by the males. Besides the processes like washing, bleaching, sizing and calendering are handled by the males. While actual printing, except resist printing, is done by the females. In addition the females also help in all the sundry work of unimportant nature.

Wage System : All the workers are paid on piece rate. For printing they get Rs. 2 per 10 pieces. The average capacity of a woman is 10 pieces a day. It sometimes reaches to the maximum 15 pieces per day. Uniformity of the rates is not possible on account of the intense division of labour and the complicated nature of work. Usually a male worker earns Re. 1 to Rs. 2 and a female worker annas 12 to annas 14 per day in the various processes excluding actual printing.

An outworker doing 'Saudagiri' Sari printing at Ahmedabad earns Rs. 50 per month while for printing 'chhints' or cut-pieces, he gets annas 10 to 12 per piece and annas 2 to 3 for printing the borders.

Selling Organisation : In the calico printing run thus on the cottage basis the persons engaged fall into two

categories, viz. (i) outworkers and (ii) Karkhandars. The latter are further divided into (a) independent Karkhandars selling directly to the consumers and (b) contractors working for cloth merchants.

Whenever these calico printers do not get orders for printing from the local merchants, they secure from them cloth and dye-stuff on credit. For this the local merchants charge them 9 to 12 per cent interest per annum. Whenever they take such initiative, they print the cloth and sell it directly to the consumers. They are able to purchase the raw materials on credit and to effect the sale of the finishing products because of their long established goodwill in the market.

Knot Printing or "Bandhani"

Knot printing still persists to a certain extent at Ahmedabad, Surat, Patan, Cambay, Palanpur and Baroda. But the total number of knot printers is hardly 100 in Gujarat*. Knot printing requires a very elaborate and labourious process. First of all, the required cloth is stamped with straight lines or curves and dot designs are made on all these lines. The workmen hold the thin bit of cloth with their forefinger and thumb nails. They tie the knots on the cloth with the right hand while the cloth is held by the left hand. After doing this, the cloth is handed over to the dyer who commences his work by immersing the folded up and completely tied cloth in the lightest shade that is to be imparted to it. Then it is given to the knot or 'bandhani' worker who works on it a second pattern by tying up another series of raised up points. It is again dyed in the next shade and if pattern is completed the threads are loosened and the cloth is opened revealing a field of one colour with a pattern in points of two other colours repeated all over. If more elaborate designs are required the tying and dyeing is multiplied.

These knot printed Saris ('Bandhanis') are very beautiful and artistic, but costly when compared to the spray work products of the textile mills. Knot dyeing has therefore received a crushing blow with the introduction of spray work in the textile mills and especially with the production of the special

* Once their number ran into thousands. cf. "Knot dyeing... is extensively practised in Ahmedabad. Over 10,000 women are doing this work here."—G. P. Fernandes: *Art-Crafts of the Bombay Presidency* 1932, page 11.

patterns like 'Dariai Moj', and 'Vadali'. Thus the mill's attractive and cheap production has to a great extent outwitted the importance of 'Bandhanis'.

'Abhrak' work and Mud Printing also deserve a passing reference. The printers of Patan and Rajpur give special dye to khaddar cloth and then with the help of a thick needle ('suyo') make on it various designs of dots, flowers, trees etc. For printing purposes they use synthetic colours of Haverro Trading Company. But with the red, yellow or green colours of the above company they mix (with the help of castor oil) powdered mica, lead oxide and zinc oxide.* Formerly this printed cloth was used for making petticoats by the low class females. But the demand for their needlework† has fallen during the last 30 years as these females have begun to favour coloured piecegoods ('Chhints'). Consequently only half a dozen printers, 4 at Patan and 2 at Rajpur are now engaged in 'Abhrak' work in Gujarat. Unless their production is popularised and new designs are shown to them this art is likely to die out. It is however interesting to note that the educated class has made increasing use of this print for table-cloth and window curtains during the present days of scarcity. Therefore abhrak work has shown some signs of revival.

Mud printing is now done by only 2 artisans at Rajpur. First of all they wash the rough white khaddar cloth and remove its starch. Then they dye it with tamarind seed‡ powder and make it pinkish. On this pinkish cloth red spots are printed. The cloth is then washed, dried and printed with white spots of mud colour. After so many processes it is deepened into black colour. This art also persists on a small scale in Sind and there is a general complaint that compared to Sind dull colours are used in Gujarat. Only backward communities used to patronise this cloth in the past. But their taste has undergone a change. Instead of mud prints they now prefer to use mill made chhints which are comparatively cheap.

Calico Printing by Machinery

For cloth printing small factories are recently established at Ahmedabad. But their number is small. It is so because

* 'Abhrak', 'Sindur', and 'Safedo'.

† 'Suya Kam'

‡ 'Kachuka'.

until the outbreak of war our markets were glutted with foreign 'Chhints' (that is coloured piece-goods) which offered a severe competition to calico printers. The textile mills had also begun to install printing machines. But the war practically cut off all the foreign supplies and on the other hand increased the home and foreign demand for cloth as the billigerent allied countries could not cope up with their war demands. The number of printing machines therefore began to increase at Ahmedabad. In the pre-war days their number was 5 to 6, but now it has increased to 80 or 90. Some of the calico printers have also established printing machines in their Karkhanas.

Machinery, Labour etc : Except 2 or 3 large factories having more than two machines generally all other concerns possess one machine worth Rs. 700. Formerly the printing machines were mostly imported from Japan, but now they are manufactured locally.* Every machine is run by electricity and in a day it prints 10 pieces,† each of 400 yards length.

Mostly the factory owners get orders for printing from the local dealers who supply them with cloth. Generally their cost of printing comes to 30 percent of the cost price of cloth. The average number of labourers employed in each factory comes to 15 and in all about 1000 labourers are at present working in this industry. These workers are paid time rate, that is, one rupee per day.

Scope : It will not be out of place here to point out that printed cloth has a substantial market not only local and provincial but foreign too. The markets for our printed cloth extend to East India, Strait Settlements, Persia, Aden, Africa etc. Thus there is a wide market for this industry.

But the output by machine being greater than by hand, machine printing has an upper hand in printing 'Chhints' that is piece-goods used for blouses, frocks, etc. The varieties like Bangala printing, Saudagiri Sari printing and even Chhidri printing are not amenable to machine printing. Therefore in the production of these articles hand printing does not face any

* However when the roller carrying designs becomes out of order, it has got to be sent to Bombay for its repairs.

† 'Takas'.

competition. At times machine printed pieces have also to undergo handprinting in different colours. It being so, hand printing has still remained indispensable for some special purposes. In the mofussil areas handloom production has also been responsible for finding work for the calico printers. It therefore goes without saying that calico printing on hand basis now serves the subsidiary purposes of the factory industry.

CHAPTER VI

WOOD WORK

According to the 1931 Census returns 36,375 persons were engaged in the industries connected with wood. The main heads under which this number was distributed were Carpenters 23,925; Basket Makers and those in other industries of woody materials 10,958 and Sawyers 1,654. But the Sawyer's does not really constitute an industry. They are wage-earners who are engaged by contractors and are mostly found in forest districts.

Carpentry is both a rural and urban occupation in this Province; but generally it is a cottage industry. Besides carpenters as such form the most important artisan class of Gujarat. In rural areas a carpenter is called upon to do all sorts of wood work including making of building material, furniture, toys, agricultural implements, carts, spinning wheels etc. As a building contractor, he often plays the role of a village architect and engineer. He has thus preserved his independent status in rural areas where he mostly works as an independent artisan.

A carpenter in urban areas has comparatively more avenues of employment. His status is therefore determined according to the position he holds in the various large and small factories. He is employed as a wage-earner by engineering workshops, contractors' firms and textile mills. He is working in partnership with the merchants who finance furniture making, coach making and motor body building industries. He also finds some scope in stamp making bobbin making, wood carving etc. As more avenues are open to him in urban areas there he is economically better off than his fellow worker in rural areas.

Cradle and Cot Making or 'Kharadi Kam'

Cradle and Cot making persists in Gujarat from the very ancient times. Those carpenters who make these articles of daily necessities and the articles like toys, hangers and 'Velans' by turning process are known as 'Kharadis' or 'Sanghedias'. Godhra, Idar, Ahmedabad, Surat, Lunawada, Radhanpur, Palanpur, Patan, Balasinor, Modasa, Santrampur, Chansma and Sankheda are the important centres in this connection. But the most prominent among these are the following :

Centre	No. of Artisans	Centre	No. of Artisans
Godhra	250	Ahmedabad	75
Idar	80	Surat	75

Godhra thus happens to be the leading centre of this industry. That is because labour here is comparatively cheap than at Ahmedabad which is the main market for Godhra products. Besides the Panch Mahal forests happen to be the main source of timber supply to all the above cots and cradle making centres. Therefore raw material is available at comparatively cheaper rate at Godhra than elsewhere. Incidentally Ahmedabad, Bulsar, Broach and Nadiad—the main marketing centres of their products—fall within the British territory. Therefore as regards rates and taxes uniform policy prevails at these centres.

The principal raw material required by the artisans in this industry is wood; viz. timber, teak, 'tanchh', 'kalam', 'beeyo', 'dudhiyo', etc. In addition, they also require lac, dyes and nails. The raw material is purchased from the local market and it is interesting to point out that all the wood required by these Kharadis comes from the Panch Mahal, Rajpipla and the Dang forests.

The common equipment employed by the Kharadis is a revolving saw fixed to the floor and run by electricity. The implements mostly required by them are saw, hammer, axe and nails of various types.

The big Karkhandars in this industry purchase timber to the extent of Rs. 10,000 to Rs. 20,000 at a time and in addition nails, dyes and lac worth Rs. 500 to Rs. 1,000. Mostly they happen to be the master craftsmen who employ additional artisans to help them in making various articles. On an average their gross earning (including (i) the remuneration of their labour, (ii) their supervision and organising charges, and (iii) the interest on their capital) comes to 20 per cent of their total investments. In 1938 they used to pay at the most Rs. 2 to the artisan but now they pay him Rs. 3 or even Rs. 3-4 per day. The present annual output of Godhra is estimated at Rs. 6 lakhs* and the annual production of Gujarat on this basis can be estimated at Rs. 20 lakhs.

* The pre-war estimate given by the 'Kharadis' of Godhra was of Rs. 1,50,000.

The main markets for their goods in the order of merit are Ahmedabad, Broach, Nadiad, Bulsar, and Kathiawar. The market is mainly provincial. The Kharadis have suffered a great loss of market as the use of their main product, viz. the cot, became out of vogue in urban areas. To a certain extent use of iron cradles has also affected the demand for wooden cradles. Besides, by about the year 1938, Japanese celluloid, tin and rubber toys had adversely affected the market for their wooden toys. But for World War II, the Japanese cheap toys would have completely ousted these indigenous toys from our markets and they would not have left any scope for developing toy making industry on a competitive basis in this country. The war not only stopped the Japanese but all the foreign supplies to our country. It therefore widened the markets for the indigenous toys of Gujarat's Kharadis. Consequently, the earnings of the independent artisan engaged in toy making at Idar has risen to Rs. 50 to 60 per month as compared to Rs. 25 to 30 that he used to get in the year 1938.

However, toys made by the Gujarat artisans are neither very attractive nor much in current demand. They therefore require guidance in making new and better toys so that their products can equally match foreign products in shape, lustre, design, colour, finish, etc. These artisans are ignorant of the equipment used and the processes followed in toy making in the more advanced countries like Japan and Germany. Toy making has a very good scope in this Province as cheap raw material and a ready market are already guaranteed to it. Besides, it is likely to more than compensate for the loss of markets for cots and cradles about which Gujarat artisans are seriously complaining.

Bracelets or 'Baloya' Making

Once bracelets or 'baloya' making was extensively carried on by the Kharadis in Gujarat. Cambay used to export wooden bracelets to outside places. But when better quality glass bangles were made available, the use of bracelets faded into insignificance and they became out of vogue. It being so, bracelets making now persists only on a very limited scale in the interior parts of Gujarat. There are now only 5 Kharadis at Lunawada and 2 at Santrampur who make wooden bracelets from 'dudheli' and blackwood. Sometimes they apply brass strips to these bangles which some of the Kanbi, Koli and Khat

ladies still wear on this side. Wooden bracelets making is however their side job and they devote themselves mainly to making hangers, 'velans', 'adanis' and other articles of household requirements.

Wood Carving

Wood carving is an artistic side of the carpenter's occupation. In the good old days, this art had reached the peak of perfection in India and its reminiscences are still found in the oldest buildings of the country. Wood carving of the royal city of Ahmedabad was appreciated even in the European Exhibitions.* Ahmedabad's carved screen and brackets were very popular in the 19th century and 'carving' was considered to be "a born instinct even with the lowest carpenter and in the remotest villages"† in this district. But now all this past history has faded into oblivion. The number of wood carvers in Gujarat at present is miserably low. It is hardly 80.

Sandalwood Carving

History : Among the wood carvers, the Surat 'Pettigaras' or Sandalwood box makers enjoy prominent position. By 1919 there were 17 shops employing about 60 artisans at Surat.‡ This is a cottage craft at Surat and in the early days of this art craft the trade of sandalwood articles was greatly patronized by the Bombay and Delhi merchants. From 1922 to right upto 1927 one ivory merchant of Delhi made heavy purchases from the Surat sandalwood carvers§ and his purchases gave a good fillip to this art craft. But later on, depression overtook this industry as the yearly purchase of the Delhi merchant declined from Rs. 10,000 to Rs. 2000. This reduction in sale brought about partial unemployment among the sandalwood carvers and lowered their remuneration. On account of this depression the Karkhandars and the artisans began to give up this industry and now there are only 6 shops employing in all 18 artisans at Surat.

* Journal of Indian Art, No. 11 May, 1886, p. 42.

† Vide Mr. James's article on the "Notes on Ahmedabad Carved Screen and Bracket" from the Journal of Indian Art, No. 38, 1892, p. 9.

‡ G. P. Fernandes : Report on the Art Crafts of the Bombay Presidency, 1932.

§ Mr. Fakirchand Rughnathdas, vide Report on the Art Crafts of the Bombay Presidency by Mr. G. P. Fernandes,

Raw Materials: Raw materials required by these carvers are Malbari sandalwood, blackwood, redwood, yellowwood, reindeers' horns, teakwood, ivory, black ivory, tin, dyes, glue, small hooks, hinges, etc. Most of these raw materials are purchased from the local market.

As equipment and implements they require small and fine iron and steel tools like carvers, files, needles, sand papers, implement sharpeners, etc.

Nature of Production: They make sandalwood boxes, ivory boxes and half sandalwood and half ivory boxes of various sizes. The sandalwood carvers of this place have earned a name for their artistic and beautifully carved caskets; for their designs on sandalwood boxes; for their carving of "Samudra Manthan" on the lid boxes; and for beautiful depiction of the story of Ramayan in figures, surrounded by elaborate carvings of running designs of leaves and flowers on all the four sides of the boxes. For their beautiful presentation articles the fame of these Surat carvers has travelled not only in India, but also to Europe.* The beauty of their carving lies in the fact that overlapping of one stem against another is very delicately done without breaking a single stem of the leaf. They make jewel boxes, presentation boxes, trinket boxes, cigar boxes, caskets, etc. In addition these carvers also do the inlaid work. They cut long and very thin bits of tin, ivory and black, red and yellow wood lengths of 2 ft. They fix them together with glue in the shape of hexagons and octagons. When dry they are cut into thin slices which are formed into triangles, squares, hexagons and diamonds. Then they are so arranged on the articles which they are making as to form intricate geometrical designs.

Output and Remuneration : According to the artisans, Surat's annual requirement of raw materials in 1938 was of Rs. 2,500 and its annual output of readymade goods of Rs. 10,000. The independent artisan who spent in the same year Rs. 1,200 in raw materials realised the sale proceeds of Rs. 1,600. His net earning therefore stood at Rs. 36 per month. To obtain only Rs. 36 from an art craft requiring a steady hand and the eyes of a master craftsman was not at all encouraging. But World War II has turned the tide to his advantage and his

* G. P. Fernandes : Report on the Art Crafts of the Bombay Presidency, pp. 59-61.

net earning has now risen to Rs. 55 to 60 per month.

Market : The main markets for his products are Bombay, Delhi, Calcutta, Lahore, Amritsar and Rawalpindi. The industrial concerns of these centres purchase sandalwood articles from him. But while selling these articles in their local markets they keep a bigger margin as middleman's profit. His remuneration will therefore increase if better arrangement is made for the sale of his articles at these centres. In this connection arrangements can be made with the depots of the All-India Village Industries Association. Besides, added efforts should be made to develop the markets for his goods in foreign countries.

Wood Carving in General

It goes without saying that Gujarat was once known far and wide for its wood work. Wooden cabinets of Ahmedabad had won medals for Ahmedabad carvers in Antwerp Exhibition.* Owing to the high prices of these articles only the rich could patronise this art. With the passage of time this art has practically died out, as carving on houses has mostly disappeared on account of the change in the fashion of building construction.

Idols and Pillars Carving or 'Temple Work'

Hence only 11 artisans† now devote themselves to carving of wooden idols to fit in pillars, doors and seats of deities in the Jain and Hindu temples. These artisans get orders mostly from Jain, Swaminarayan and Vaishnav temples.

Important raw materials required by this cottage craft are Bulsari Sag and silver wire from which the artisans make silver nails. One carver takes 8 days in carving the figure of a door keeper 2 feet high, 10 inches broad and 7 inches in dimension. In 1938 he used to get Rs. 40 for this idol, in making which he required Rs. 8 worth wood and silver nails. Hence his income was Rs. 2 per day. But he remained idle for about 4 month in a year. He received orders from the temples at Dwarka, Mathura, Delhi, Ahmedabad and Vadatal. But as the years roll on, the demand for this type of work is declining. Therefore

* Journal of Indian Art, No. 38, 1892, p. 9

The Collector of Ahmedabad Mr. James refers to Mr. Chaku Bhudar and Mr. Somnath Mistri as the famous personalities for wood carving in those days. Their speciality was to carve on screens of wood.

† 9 at Ahmedabad and 2 at Visnagar.

his attention should be diverted towards making the modern toys for which there is a very good market in the Province itself.

Wood Work of Visnagar and Bansda

At present Visnagar enjoys very good reputation as a centre for wood carving in Gujarat. This fame is brought to this centre by its only expert artisan* who makes beautiful wooden figures of camel, buffalo, crocodile, lion, elephant, etc.

He requires blackwood, teakwood, iron nails, makhmal cloth and woolen cloth ('banat') as raw materials. With the help of implements like saw, hammer, axe, needles, etc., he carves out within a week the figure of a buffalo 6" x 10 x 3½". He takes two days in making the rough shape, four days to carve out the figure from the rough shape and one day to make the stand for the buffalo figure to rest. He used to pay Rs. 1-8 per day to the artisan who helped him in all the processes in 1938, but now he pays to him Rs. 2 per day. His monthly earning was Rs. 40 in 1938, but now it has risen to Rs. 80. He mostly gets orders from Bombay, Baroda and upcountry centres like Karachi. The Baroda State is evincing keen interest in this art and this artisan is often invited to guide the pupils of the Kalabhuvan training centre at Baroda.

One such expert artisan† also lives at Bansda who makes very beautiful polo balls and buttons from bamboo roots. From 'tumbda' wood he makes indigenous wind instruments known as 'madal', 'tur' and 'tuntunia'. His craftsmanship has earned a name for the Bansda cottage products. In order to take advantage of his craftsmanship the authorities of Kalabhuvan at Baroda should invite this expert artisan to guide their students along proper lines in wood carving. Unless proper steps are taken to preserve this art and divert it along the commercial lines, wood carving is bound to decline in Gujarat.

Sankheda Lacquer Work

Sankheda and Bahadurpur in the Baroda State are well-known centres for lacquer work in Gujarat. But during the year 1938 the artisans of these centres were complaining about a great loss of their market. Up to the year 1919 they were able to sell goods worth Rs. 10,000 per year, but gradually the demand for their goods declined and in 1938 they were hardly able to

* Mistri Narotam Kalidas

† Mistri Morar Bhagwan

effect an annual sale of goods worth Rs. 4,000 to Rs. 5,000. After 1930 they had usually to remain idle for about 2 to 3 months in a year and in 1938 the independent artisans hardly earned Rs. 25 per month. But World War II created a war-time boom in their trade. Consequently, Sankheda and Bahadurpur products regained much of their lost markets, especially in toys. Their monthly earning has now risen to Rs. 50. But once the normal conditions are restored, these artisans are afraid that they will not be able to keep hold over their toy markets. They therefore need direction about carving new designs, new shapes and new models. They also want to learn the art of painting.

The Sales Depot* of the Baroda State stocks Rs. 100 to Rs. 150 worth articles of these artisans. After selling this stock it asks for the further stock of the same amount. In this connection instead of first taking the goods on credit and giving money to the poor artisans after the sales realisation, it would be better if the State's Department makes cash purchase and then stocks the goods for sale in its Sales Depot. The State will not be required to invest much as there are only 20 artisans, (or in all 15 families) at Sankheda, while the artisans will find a great relief from this cash payment.

More important from the point of view of art is the making of tin colour† which happens to be the trade secret of Sankheda artisans. These artisans want some convenient implement to make holes‡ in wood. They have to give the required shapes to timber by the turning process. For this they urge the introduction of at least one lathe at Sankheda. But owing to the absence of electric supply at this centre, the latter demand cannot be fulfilled at this stage.

Cart Making

Cart making once formed one of the important main stays of urban and rural carpenters. But the demand for cart has greatly declined during the last 40 years because of the development of faster means of communications like railways, omnibuses and motor lorries. The carts no longer hold their former monopoly as the carriers of passenger and goods traffic. Formerly the rural carpenters used to make spinning wheels and

* 'Vikriyalaya'.

† 'Kallaino Rang'

‡ "Petch Patli"

wooden boxes. But these articles are no longer in great demand. In the coastal districts they used to make small boats, but this trade is also badly affected. Moreover, because of the imports of readymade doors and windows, those carpenters who engaged themselves in making building materials are also hard hit in their business. Hence the main function of the carpenters in most of the Gujarat villages is to repair the agriculturists' implements and carts and to act as architects and fitters for any new buildings being constructed. Under the circumstances the earnings of rural carpenters have gone down considerably. They varied from Rs. 10 to 20 per month in 1938 and their position was going from bad to worse. But the war has turned the tide to their advantage and their earnings have risen to Rs. 40 or Rs. 50 per month. This is however a temporary fillip. In order to stabilise their position in the rural economy of the Province, these carpenters require guidance for diverting their attention to the production of new articles like cricket bats, balls, polo sticks, etc. If they pick up this art they will easily meet the demands of our sports and games. They can, if properly guided, also make toys and furniture.

Bulsar, Surat, Kalol, Radhanpur, Vadali, Vankaner and Kadod are the cart making centres of Gujarat. But its more important and better known centres are Talaochora, Mandvi, Valam, Vyara, Godhra, Bhalej, Amod and Palanpur.* Amod and Palanpur have specialised in making light or passenger carts† while other centres have mostly concentrated on making heavy or load carrying carts.‡ The raw materials required in cart making are 'tanachh', 'sag' and 'kher' wood. 'Tanachh' is used for making body of a cart and 'sag' and 'kher' wood are used for making its wheels. Other raw materials needed are hardware products, mainly nails, rails, bars and rings.

It takes a whole month for one artisan to complete one load-carrying cart, which in 1938 could be sold at Rs. 100. Its raw materials used to cost Rs. 55. Therefore the independent artisan earned Rs. 45 per month. But the average monthly income of an artisan was hardly Rs. 30 to 35 as the

* Other important centres of the Palanpur State are Sasan, Takarvada, Lakhampura, Chadokha and Jagana.

† 'Damanis'

‡ 'Malgadis'.

artisan who is confined only to cart making spends four months of the rainy season mostly in cutting wood into pieces of required sizes. The process of seasoning is thus a very laborious one and takes a fairly long time. As during World War II the military in particular made a heavy demand upon the existing transport facilities, the faster means of communication were not easily available for the transfer of civilian goods. That is how cart transport got a very good fillip. There was a great demand for carts, and a cart which was worth Rs. 100 in 1938 began to fetch Rs. 200 or even Rs. 225. On account of this rise in the price of a cart, the monthly income of an independent artisan in the cart making industry has risen to Rs. 75. The busy season in which orders for new carts are received lasts from October to April and markets for carts are local as well as provincial.

But the utility of the cart as a means of transport is bound to diminish with the development of faster means of communications like railways and omnibuses.

Coach Making

Just like carts, coaches were also in great demand up to the Victorian Age. Stage coaches were available for travelling over great distances. But their importance as a means of transport declined with the construction of the railways and the establishment of the bus services during the latter half of the 19th century. Thenceforward there is a general fall in the demand for coaches and coach making has declined at every centre of Gujarat. This tendency has become more conspicuous after 1920.

Important Centres : Surat, Ahmedabad, Baroda and Bulsar are the important coach making centres of Gujarat, with about 50 concerns in all, employing approximately 250 artisans. But these concerns no longer concentrate solely upon coach making; they also undertake to make carts or cart-wheels.

Raw Materials and Equipment : Raw materials required by these concerns mainly consist of timber, especially Malabari sag, teakwood, kher wood and 'tanachh'. Other raw materials required are iron and nickel sheets, nails and screws, rubber tyres, steel rods, chrome, coir fibres, dyes and jute cloth. All these raw materials are purchased by coach makers from the local markets. The wood required in coach making comes mostly from the Panch Mahal and Dang forests. The implements required in coach making

consist of saw, hammer, axe, anvil, needles, files, sand papers, etc.

Production and Market : It took one month for the artisan to make a coach worth Rs. 295 for which he obtained Rs. 360 in the year 1938. His remuneration was therefore Rs. 65 in that month in which he could engage himself solely in coach making. However, the rate of new coach making had gone down on an average to 4 per Karkhana and for the remaining part of the year coach makers got only coach and cart repair work. Petrol was available at 10 as. a gallon and a taxⁱ was available at 4 as. a mile during the years 1936 and 1937. The coach makers carried on their business during these years of depression only because it was their hereditary occupation. At one time it also appeared that coach making was on the verge of extinction. But World War II gave a great fillip to this industry. The price of a coach that was sold at Rs. 360 in 1938 rose to Rs. 700 and even to Rs. 800 during this period. Consequently, the remuneration of coach-makers has gone up. They now earn more than Rs. 100 per month. But this is a temporary phase. Market for the coach is provincial. This industry is likely to get a setback in the near future when normal conditions are restored and more petrol and more cars are again available.

Motor Body Building

This industry is of comparatively recent origin in Gujarat. It started first at Ahmedabad and after 1920, with the increase of bus services in Gujarat, it has spread into various centres. Motor body building is now carried on at Ahmedabad by 4 Karkhanas, and at Surat by 4, at Baroda by 3, and at Nadiad by one. In all about 200 persons are engaged in this industry. As the demand for bus services is fast growing this industry has good chances for its development in the near future.

Nature of Work : Motor body builders receive plans and orders for the motor bodies from (i) local customers, (ii) local bodies or (iii) automobile repair works. The various parts needed for the construction of a motor body are purchased from local markets. The Karkhandars enter into contract with their customers to build a motor body and they fulfil their contract with the help of carpenters, painters, blacksmiths and cushion makers. Thus the employees in a motor body building Karkhana are not permanent.

Raw Materials and Equipment : The following are the main raw materials required by them. Malbari timber, iron sheets, nails, screws, handles and bars, dye-stuff, lining cloth, leather and mirrors. Their equipment consists of 'bhida', 'sigra', bolts, screws, iron sheets, curtain rollers, etc. They generally employ one mochi or leather worker, one blacksmith, one painter, 4 or 5 carpenters and one coolie. Thus they engage the services of about 9 to 10 workers per Karkhana. These artisans bring their own tools. Therefore the Karkhandars are not required to invest much in the tools or equipment.

Economic Condition of the Workers before the War : Carpenters and blacksmiths were paid Re. 1-12 to 2-4 daily wages in 1938. During those days by investing about Rs. 1,500 in raw materials a Karkhandar used to earn about Rs. 80 to 90 per month. If new orders were not received he got enough repair work to run his Karkhana throughout the year.

Present Condition : However, World War II made a heavy demand upon the existing transport facilities of the country, which, moreover, still continues. This has increased the demand for motor bodies. All throughout the war period motor body building Karkhanas have remained very busy. They are now paying Rs. 2-8 to Rs. 3-8 to carpenters and blacksmiths. The cushion makers and painters are paid in lump sum according to the size of a motor body. The income of a Karkhandar who used to earn Rs. 70 to Rs. 80 in 1938 has risen to about Rs. 200 per month.

Financial Needs : Usually half of the contract price for the construction of a motor body is received in advance. Therefore the problem of finance does not trouble them. When orders are given by the transport companies, they usually supply all the required materials to the Karkhandars. Carpenters and blacksmiths bring their own tools. Therefore the Karkhandars hardly get any occasion to borrow money from local shroffs. The period required to build a particular motor body naturally depends upon its size and shape and the number of artisans employed for making it.

Special Problems of the Ahmedabad Motor Body Builders : According to the Ahmedabad motor body builders their position was far better some eight years ago. Before the Ahmedabad Bus Corporation came into existence there was no

stipulation regarding the model and size of a motor body. Bus owners were at liberty to choose any Karkhandar for motor body building and the motor body builders could devise new designs and make new models. As they could take the initiative, they had free scope for the display of their art and skill in building the motor bodies. But the cut-throat competition that ensued among the private bus owners forced all the bus owners of Ahmedabad to join hands and to establish their own 'corporation'. The local municipality also intervened; it fixed the size and model of a motor body and its seating accommodation. As model, seating accommodation, etc. were henceforward to be constructed according to the rules laid down by the local body, various Motor Companies with limited liability came into existence at Ahmedabad. The independent body builders could not compete with these joint-stock companies. Thus though these companies ultimately get their work done through these motor body builders, the independent status of the motor body builders is affected. Most of them now work as salaried mechanics or wage earners in these joint-stock workshops. If they try to stick to their independent status their tenders are generally not accepted. The growth of joint-stock workshops has thus reduced the motor body builder to the position of a wage earner at Ahmedabad. This is however an inevitable change in the economic transition.

Furniture Making

The census returns give us the clue that 884 persons are working as Cabinet makers, Carriage painters and Upholsterers in Gujarat. But among these workers 134 are carriage painters and upholsterers. The remaining 750 are therefore cabinet or furniture makers. Thus furniture making is a growing industry in Gujarat. In small towns the carpenters do make chairs, tables, etc., but furniture making does not form their main occupation at such small centres.

Important Centres : Gujarat's leading furniture making centres are Ahmedabad, Baroda, Surat, Godhra, Sankheda, Bulsar and Patan. Ahmedabad, being the capital city and the highly industrialised centre of Gujarat, stands first as regards size and output in this industry. There are about 22 large and 75 small concerns at this centre.

Raw Materials and Implements: The raw materials required by this industry are Malbari sag and teakwood of suitable size (in cubic feet); iron wares, viz. nails, screws, handles, hinges, chains, etc., mirrors, polishing material and sand papers. These are mostly purchased from the local market. Practically all the wood requirement of this industry is supplied by the Gujarat forests. The implements required consist of a compass, drills, files, Ingal's 'bhido', 'rando', 'sayadi', 'farsi', 'marpha', 'okari', etc.

System of Wage Payment: The large Karkhanas employ more than 30 carpenters each, while smaller ones employ about 15 to 20 carpenters, whose wages varied according to their skill from Re. 1 to Rs. 2-8 in 1938. But after the outbreak of World War II, they are getting Rs. 2 to Rs. 3-8 according to their skill and efficiency. In some Karkhanas wages are paid on piece rate. But this depends upon the nature of work and the type of production.

The economic condition of an independent artisan in this industry varies from centre to centre. During the year 1938 his income was about Rs. 50 per month at Ahmedabad, Rs. 40 at Surat and Rs. 30 at Olpad. This variation is partly due to the difference in the standard of living at these centres and partly due to the difference in (1) the quality of output, (2) the capacity for capital investment, and (3) the demand for the goods in the local markets. However, after the outbreak of war, on account of (i) the greater demand for furniture from the wartime departments and offices and also (ii) the general rise in commodity prices and hence in the cost of living, their income has practically doubled at all the above centres.

Marketing Methods: The big Karkhanas have their own showrooms for display of up-to-date furniture manufactured by them. The cost of the showroom provides some clue about the capacity and the financial position of the Karkhandar. About 60 per cent of the work done in these Karkhanas is for orders received from the local mills, offices, hotels, schools and colleges and only 40 per cent of the manufactured articles are sold through the showrooms. The independent artisans in this industry mostly make furniture to order. They first receive the orders and then set about executing them.

Dominance of Bombay Furniture in the Ahmedabad Market: It is however stated that 60 per cent of the furni-

ture requirements of the Ahmedabad market are met by the Bombay furniture makers. Bombay furniture is given preference in the Ahmedabad market because of its workmanship and ultra modern patterns. Besides, the Bombay furniture makers are very prompt in the execution of orders. Even the Ahmedabad Karkhandars confess that they are unable to make furniture according to the instructions and requirements of their customers and that Bombay furniture makers are more efficient in this respect. Furniture making is mostly in the hands of the uneducated and conservative Karkhandars who cannot make furniture of new patterns. Opportunities should be provided to them to get conversant with the literature on furniture making. Journals on modern decorative and home furnishing trades giving latest designs and patterns should be made available to them.* For, if the quality of output is improved there is a great scope for its development at Ahmedabad.

Bobbin Making

History : From the very beginning of the textile mill industry in India mill machinery parts were imported from foreign countries. Bobbins likewise were imported from England and Japan and no effort was made to produce them in India. During World War I Japan remained a neutral country and it supplied most of the needs of our mill industry. But during World War II, foreign imports began to decline from the year 1938 onwards and they practically ceased by 1943. For a time the textile mills pulled on with their old reserves; but later on it became necessary for them to somehow get the bobbins from home markets.

Organisation : The first enterprise in bobbin making was made by the Metro Wood Works at Kalol in 1941. This venture proved a huge success. Consequently, a large number of financiers who had some connections with the textile mills opened bobbin works in Ahmedabad in partnership with the local carpenters. Thus there was a mushroom growth of bobbin making factories in Gujarat. In all about 80 to 90 factories came into existence at various centres like Ahmedabad, Navsari, Bilimora, Nadiad, Kalol, Surat, Broach and Baroda.

Raw Materials and Equipment : The primary reason

* Report of the Bombay Economic and Industrial Survey Committee; Vol. II (Ahmedabad), p. 15.

for the remarkable development of bobbin making is the availability of cheap wood in abundance in Gujarat forests and secondly the simple equipment needed in the manufacture of bobbins. The wood used for bobbin making is either yellow wood, 'kalam', or 'kanaj' obtained from the local markets to which it is imported from the Dang, Godhra and Rajpipla forests. It was sold at Rs. 10 per cubic yard* in 1938. But owing to heavy demands, and the difficulties in obtaining wagon supplies for civil purposes, its price once rose to Rs. 95 in 1943.

For painting the bobbins, polishing materials like varnish and sand paper are purchased from the local market; and if the bobbin shields (of iron or copper) are not manufactured within the bobbin factory, they are also purchased from the local market. All the drills in the bobbin factory are run by electricity. Electric motors or dynamos are therefore purchased by all the bobbin factory owners. Usually their equipment consists of an oil engine, a bent saw and an automatic turning lathe. About Rs. 3 lakhs are estimated to have been invested in the bobbin factories equipment in Gujarat.

Labour: Since bobbin making is a new industry, the high wages offered by it attracted a large number of labourers. The average rate of wages was Rs. 2 per day in 1941, but it rose to Rs. 3 in 1943. On account of the handsome wages offered in these factories, the wages of the carpenters in other wood works also rose to the level of Rs. 2 or 3 per day.

State Intervention : The Bombay Government passed the Bobbin Control Order on 27th April 1943. By this Order they regulated the price of each type of bobbin. In addition, they made it compulsory for the bobbin manufacturers to take permits for the sale of their bobbins and they also required the sellers and the buyers to fill up some prescribed schedules. On account of Government intervention and regulation, a number of factories closed their doors† at the various centres of Gujarat. It is reported, however, that such factories were mostly manufacturing very inferior quality goods.

* 'Gaj'.

† In 1943 there were about 80 to 90 bobbin factories in Gujarat. There were about 50 to 60 factories at Ahmedabad, 8 to 10 at Navsari, 4 to 5 at Billimora, 4 at Kalol, 4 at Surat, 3 at Nadiad, 3 at Broach and 3 at Baroda.

Present Position : The present estimate of bobbin factories in Gujarat is as under:—

Centre	No. of Bobbin Factories	Centre	No. of Bobbin Factories
Ahmedabad	31	Nadiad	3
Navsari	5	Kalol	3
Surat	4	Baroda	3
Bilimora	3	Broach	2

In all about 50 factories are at present working in Gujarat while about 40 factories have been closed since 27th April 1943.

Working of the Industry : The yearly consumption of wood by these bobbin factories is estimated at Rs. 75,000, while their consumption of copper and iron rims, paints, etc. is estimated at Rs. 45,000. If the labour charges are added to the cost of the raw materials, the price of the bobbins on an average comes to Rs. 20 per gross. The total monthly production of bobbins in Gujarat is estimated at 15,000 gross or 150 boxes.* Out of 150 boxes manufactured in Gujarat about 60 are produced at Ahmedabad and 90 at other centres. The total number of workers employed in bobbin factories is estimated at 15,000 and the average selling price of bobbins per gross is Rs. 35. The total monthly sale of bobbins by Gujarat factories stands at Rs. 5,00,000.

Market: Markets for the Gujarat bobbins are mainly provincial and to a certain extent inter-provincial. About 5 to 10 per cent production is sold in the upcountry centres. In the order of their merit Ahmedabad, Bombay, Indore and Central India mills are the chief consuming centres of Gujarat bobbins. The bobbin manufacturers mostly sell their goods for cash directly to the textile mills; and when sold on credit they get their payments at the most within a month of the delivery of goods.

Future It is reported that monthly consumption of bobbins is 100 gross per 10,000 spindles in a mill. On this basis Ahmedabad mills require 200 boxes or 20,000 gross bobbins and the total consumption of Gujarat mills comes to 250 boxes or 25,000 gross per month. As the present factories produce only 150 boxes or 15,000 gross bobbins per month, there is a very good scope for development of the bobbin industry in Gujarat.

* Each box contains 100 gross.

At present Ahmedabad mills are importing foreign bobbins on a considerable scale every year.

The entire technique of the industry as it is run today is reported to be defective. (i) As the bobbin manufacturers are ignorant about the scientific seasoning process, more breakages occur in the process of bobbin making. The unseasoned or partly seasoned wood often breaks while on the drill, which adds considerably to the cost of raw material. (2) The machinery of the bobbin factories is of local make. It is not upto the mark. Bobbins must have their holes in the exact centre. But because of defective machinery, they are often made off the mark, during the turning process. As a result the quality of the output suffers. (3) Only two factories at Ahmedabad have made provision for spray painting by machine, the rest of the factories in Gujarat still resort to the dipping process. Therefore, spray painting should be introduced in all the factories. (4) In order to reduce labour charges, as far as possible automatic machinery should be introduced in these factories.

The cost of bobbins comes to Rs. 20 per gross in the Gujarat factories and their selling price on an average is Rs. 35. Before the out-break of World War II, better quality foreign bobbins were sold at Rs. 4 per gross in our markets. Cost of production thus seems to be very low in the foreign countries. If wood is made available at the pre-war rate, the Gujarat manufacturers can supply bobbins at half the current rates. But even then the Indian bobbins will not be able to compete with the foreign bobbins in price as well as quality. This industry therefore needs drastic rationalisation. Unless urgent steps are taken to put it on an equal footing with foreign factories, there is every likelihood of its decline in the near future.

Stamp Making

Wooden stamp making is mainly done at Ahmedabad. This is because there is a greater congregation of calico-printers at this centre than at any other centre of Gujarat. The wooden stamps made by carpenters are used for calico printing. So long as the handloom industry, and also calico printing, were in a flourishing condition, this handicraft was thriving on a very good scale at Ahmedabad. But with the decline of the above industries many stamp makers got out of work and they

joined textile mills, engineering firms, etc. as wage earners. There are at present about 18 wooden stamp making Karkhanas at Ahmedabad which employ in all about 100 artisans. The raw material required by this industry is timber—mainly 'sag' and teakwood, and the implements needed are saw, axe and needles.

The monthly income of an artisan in this industry was Rs. 25 in 1938 but now it has risen to Rs. 60. The market for the wooden stamps is local. The local calico printers buy these stamps on credit and make payment in small instalments. They make full payment within a year or two. The Karkhandars in this industry therefore complain about the irregular payments and defaults in payments by their customers. They have to write off about 5 to 7 per cent of the sale proceeds as bad debt every year. However, they do keep in mind this margin while selling on credit. This is a cottage craft and a subsidiary industry depending for its existence and development upon the conditions of the calico printing industry.

Bamboo Work—Basket Making, etc.

According to the 1931 census returns 10,956 persons were engaged in bamboo work in Gujarat. The chief districts or divisions in which this industry is concentrated and the number of persons engaged in it are : Surat (1,410), Navsari (1,258), Kaira (1,243), and Mehsana (1,097). The bamboo workers are scattered all throughout Gujarat and they cater to the needs of their local and adjoining markets. Some of the leading bamboo making centres of Gujarat and the number of workers engaged therein are : Surat (125), Bansda (50), Rajpipla (40), and Bulsar (30).

All these centres in which there is a good congregation of bamboo workers are situated in South Gujarat. That is because South Gujarat is greatly favoured with green foliage, vegetables, flowers and fruits. The fruit growers of Surat, Navsari, and Bulsar require baskets for exporting fruits to Bombay. Poultry farming is also carried on more in South Gujarat, which requires special type of baskets for the export of eggs to Bombay. The bamboo workers on Surat and Navsari side also make brooms and export them to Ahmedabad and Bombay. Besides, they make mats and mattresses from Khajuri leaves for packing cargoes carried by country crafts. In North

Gujarat the baskets are mostly purchased for domestic use. During 1938 the per capita earning from basket making was Rs. 4 to Rs. 4-8 per month in North Gujarat, while it was a bit higher, about Rs. 5 to Rs. 5-8 in South Gujarat, on account of its greater demand for bamboo articles.

After the out-break of war the earnings of the bamboo workers have risen to a considerable extent—Rs. 14 to Rs. 15 in North Gujarat and about Rs. 20 to Rs. 22 in South Gujarat. There was a heavy demand for fruits from Surat and Navsari divisions by the military headquarters at Bombay, which created a very heavy demand for bamboo baskets. The industry is likely to develop on a considerable scale, if fruit and flower growing as well as poultry farming are encouraged round about Surat, Navsari and Bulsar areas. Bamboo work is not very paying, and as a cottage industry it is mostly a family occupation. The females of the Harijans,* Vitolias, Vansfodas and the Kaliparaj† occupy themselves in bamboo work. During monsoon they work as agricultural labourers—for harvesting, weeding and scattering. They are illiterate and poor. They cannot make fancy articles of bamboos. Unless they are taught the art of making hats, toys, balls, etc., there is no possibility of creating a new demand for bamboo wares made by them. Technical and industrial schools should therefore be opened at some convenient centres like Surat, Navsari and Bulsar.

* Bhangis and Dhods

† Konkana, Gomta and Chodhara tribes.

CHAPTER VII

METAL WORK

According to the 1931 census returns, the total number of workers in metals in Gujarat was 15,385. This number could be classified as under :-

Blacksmiths	12,219	Workers in other metals	212
Workers in brass, copper and bell-metal	2,723	Workers in smelting, forging and rolling of iron and other metals	231

The greater congregation of blacksmiths is found in the following divisions :-

	No. of blacksmiths		No. of blacksmiths
Mehsana Division	2,460	Palanpur State	952
Ahmedabad District	1,784	Surat District	719
Kaira District	1,121	Idar State	601
Baroda Division	1,057	Panch Mahals	593

Generally the blacksmiths are found scattered all over Gujarat; at least every big village has one blacksmith to cater to its local requirements. In the rural areas blacksmithy is a cottage industry.

When factory goods were not available, a rural blacksmith used to make agricultural implements like pickaxes, shovels, axes, grass cutters, wood tapers, etc. He also made saws, scissors and knives required by the rural artisans like carpenters, tailors and basket makers. In addition, he made iron frames, hinges, chains and articles of household requirements like nut-crackers, locks, sieves, winnowing fans (iron huskers), pincers (sansis), 'tavethas', 'katchhis', etc. But the demand for these products has been greatly curtailed on account of the imports of factory goods in the village markets, which are favoured by the village consumers on account of their cheapness. Consequently, the village blacksmith's position is seriously threatened. In rural areas he now repairs agricultural implements, makes axles for carts and iron bands for cart wheels, and repairs tools and implements of the village artisans. In the midst of scattered villages, the blacksmiths, by mutual understanding, attach themselves to groups of cultivators, repair their implements all the year round and earn 3 or 4 maunds of grain

as remuneration. They try to supplement their income even by cultivating a small piece of land, or by cattle breeding. Consequently, many of them have already left their hereditary calling.*

Before 1919 at most of the rural centres the blacksmiths used to pay 8 as. per day to the labourers who helped them in the various processes. But when after 1919 the decline in bullock-cart transport further affected them, they hardly required any assistance, and whenever they employed an outside labourer, they used to pay him 4 as. per day. The income of a village blacksmith in Gujarat varied from Rs. 15 to 30 in 1938. It also varied from centre to centre in conformity with the local requirements. However, after the out-break of World War II (i) the stoppage of foreign imports, (ii) consequent rise in the demand for indigenous iron wares and (iii) the rise in commodity prices, have together turned the tide in his favour. New demands are created for agricultural implements, locks, razors, knives, scissors, etc. Hence his earning in the rural centres now varies from Rs. 60 to Rs. 80 per month and the village labourer who helps him in blacksmithy earns 12 as. to Re. 1 per day.

The condition of the blacksmiths in the urban areas is comparatively better as they can undertake the manufacture of iron trunks, tins, buckets, shelves, safes, cabinets, mill machinery parts, as well as soldering, joining, repairing, etc. In engineering workshops and in various iron and brass metal works, they earn good incomes as wage-earners. Thus city life has opened new avenues of occupation for these artisans and it has also provided them with many specialised jobs.

Manufacture of Mill Machinery Parts

In Gujarat there are 5 Engineering workshop† employing 225 persons. They do general repairs and side by side produce

* At Borsad, Nadiad, Halol and the various other centres of Gujarat blacksmiths are found working as goldsmiths. They are known as 'Luhar-Sonis'. At Lunawada, Himatnagar, Patan and Santrampur. blacksmiths make silver ornaments, while at Halol the majority of the blacksmiths are at present engaged in carpentry.

† *Vide* The Non-seasonal Factories Lists of the British Districts and The Large-scale and Small-scale Establishments in the Baroda State.

some articles from scrap and cast iron. One such workshop produces mainly bolts; the other two, crude oil engines, sugar-cane crushers and electric pumping sets; and the remaining two manufacture shafting pulleys, columns and brackets required for structural purposes in textile mills. In addition, there are 14 Mechanical workshops* better known as Iron and Brass Foundries, employing about 400 persons. These workshops are mostly doing repair work, and on a small scale they also manufacture articles by casting iron and brass metals. As most of the spinning machinery parts are imported from foreign countries, they have a very good scope for manufacturing these articles in Gujarat—if helped by a sympathetic Government policy and by adequate protection against foreign imports.

Mill Machinery Parts

The manufacture of mill machinery parts is of comparatively recent origin in Gujarat. This is one of the new occupations which modern industrialisation has opened up for blacksmiths residing in the textile mill centres. As Ahmedabad is the leading textile centre, this industry has naturally concentrated more at Ahmedabad than at any other centre of Gujarat. There are about 75 Karkhanas at Ahmedabad† employing in all 800 persons. In addition, there are 5 such concerns at Surat, 3 at Bulsar and 2 at Nadiad.

Raw Materials : Raw materials required by these concerns are chiefly 'beed' iron or scrap iron (broken mill machinery parts), pig iron (Tata's), and coal. They are mostly purchased from the local dealers, according to monthly requirements; and the finance is mostly provided by the proprietors of the concerns.

Equipment : The equipment of the mill machinery parts manufacturing concerns consists of slotting machines, boring or drilling machines, milling or cutting machines, grinding machines, cutters, files, lathes, crucibles, furnaces, dies, etc. The cost of their equipment varies from Rs. 4,000 to Rs. 6,000.

Products : These concerns manufacture twist wheels, pinions, gearing wheels, brackets and various other spinning and weaving mill machinery parts. They receive orders directly

* See Note* on p. 154.

† Mill machinery parts manufacturers report that about 55 years ago this industry was first started by Mr. Lavji Mistri at Ahmedabad.

from the mills or mill agents or the mill gin store suppliers.

Working of the Industry : About half of the manufacturers at Ahmedabad are owners of small concerns who used to earn Rs. 75 to Rs. 80 per month in 1938. Others, according to their investments, used to earn Rs. 100 to Rs. 200 per month. The labourers employed by them earned Rs. 30 to 35 per month.

However, with the out-break of war there was complete stoppage of foreign imports of mill machinery parts. On the other hand, textile mills got more orders for cloth from the military quarters. They therefore began to run their machinery in double shift and thus created a heavy demand for parts. (i) The increase in demand, (ii) rise in the price of the raw materials, especially, pig iron, scrap iron and coal, and (iii) rise in the commodity prices on account of inflation, had far-reaching effects upon the working of this industry. The wages of workers in these factories rose to Rs. 2 to 3 per day, while the earnings of their proprietors have increased three to four times the pre-war level.

Condition of the Labourers : The labourers in this industry had to work unduly long, 12 to 14 hours a day. They did not get regular payments and their wages were paid to them as late as 2 to 3 months.* But the "Iron and Brass Workers Union" which was organised during the year, 1941 has brought about some improvement in their conditions. It has succeeded in enforcing (i) a nine hour working day, (ii) regular payment of wages, (iii) a six hour day for children under protected age, and (iv) higher wages along with dearness allowance.

Scope : Some of the mill owners of Ahmedabad are of the opinion that English casting processes are better and the English mill machinery parts are of superior quality because more durable. Moreover, unlike the mill machinery parts manufactured at Ahmedabad, English pinions, twist wheels, etc. are more even and exact in size and weight, yielding easy movement for their machinery, freedom from jerks, etc. The blacksmiths who manufacture these latter are illiterate, their equipment is of old pattern and they are not aware of the availability of either better equipment or of tools. They thus need proper

* 'Awaz Weekly, 20th April 1941 issue.

guidance if their goods are to match. English goods in quality. Given such guidance, this industry will expand considerably. There is also scope for manufacturing those mill machinery parts which are hitherto imported from foreign countries.

Trunk Manufacturing

It is already acknowledged on all hands that railways developed the markets for factory goods. They opened up the interior markets and put the villages into direct contact with the towns. They thus fostered travelling habits — nay, even necessitated travels—by making labour more mobile. With the movement of population from one part of the country to another, wooden boxes were found totally inconvenient for carrying goods; and there arose a great demand for iron and steel trunks. To meet this demand trunk manufacture is carried on in different parts of Gujarat and the following are its present outstanding trunks manufacturing centres:-

Centre	No. of Trunk Manu- facturing Concerns	Centre	No. of Trunk manu- facturing Concerns
Ahmedabad	18	Nadiad	1
Surat	6	Zalod	1
Baroda	5	Bulsar	1
Broach	4	Patan	1
Godhra	2	Mehsana	1

However, except at Ahmedabad, Surat and Baroda, at all other centres the trunk manufacturing concerns also manufacture iron safes, tubs, cupboard, etc. Hence to study the existing conditions of trunk manufacturing industry in its proper perspectives Ahmedabad and Surat are the proper centres. And Ahmedabad happens to be the leading centre in this connection.

Organisation : This industry is mostly in the hands of the Bohra merchants who are dealing in trunks, buckets, umbrellas and in cutlery. These dealers are generally very well-to-do and they invest their personal capital in their trade and industry. They have their own trunk making Karkhanas. Such Karkhanas are thus mostly proprietary concerns in Gujarat.

Raw Materials : They require as raw materials iron sheets, bel-tel, zinc oxide and dyes. In addition, they also need hooks, nails, chains, hinges and steels strips and rods ('khilasari tar'). Mostly they purchase these raw materials from the local

markets, but five big trunk merchants and Karkhandars of Ahmedabad order their iron and steel requirements directly from the Tata Iron and Steel Works.

Equipment : Their equipment consists chiefly of the cutting and folding machines. They also keep vices, hammers, anvils, files, sandpapers, fuel, etc. Generally the artisans bring their own tools; therefore they have not to invest much in the equipment. Their usual investment in the equipment varies between Rs. 2,000 and 3000.

Production : Ahmedabad's trunk production stood at Rs. 1,50,000 in 1938 and its requirements of iron sheets and wire at Rs. 80,000. However, after the out-break of World War II, prices of these materials have gone very high, and at times it was very difficult to get them even at these prices. Thus although according to the labour employed the industry has practically stayed at its pre-war level, the prices of its products are four times higher.

Labour : The industry employs artisans who know trunk making, and a number of coolies to help them. The method of labour employment is however typical. There is one head foreman usually called 'Mukadam'. He was paid Rs. 75 to Rs. 100 per month in 1938, but now he is paid Rs. 300. The assistant artisans ('Karigars') are paid on piece rate. On an average they used to earn between Rs. 20 to Rs. 40 in 1938, but now they earn Rs. 75 to Rs. 150 per month. In the brisk season the various processes of trunk making are divided among the workmen. E. g. cutting is done by one group of men, while folding is done by another group and painting by a third. Usually the labourers form parties of 7, 8 or 10 and take up on lot the work for (a) colouring, (b) fixing hinges, hooks, etc. or (c) for making the trunk models of a particular size. Child labour is practically absent in this industry. On the whole this industry at present employs 800 to 900 persons.

Market : The trunk manufacturers of Ahmedabad reported that in Gujarat trunk making was first started at Ahmedabad. Upto 1919 the Ahmedabad manufacturers earned handsome profits from this industry. On an average they used to earn 12 to 15 per cent on their investments, when there were only 5 of them. Gradually their number rose to 18 and trunk making was also started at various other centres of Gujarat

and Kathiawar, viz. Borsad, Nadiad, Anand, Surat, Rajkot and Verawal. These markets were thus lost by Ahmedabad which found reduction in orders to the extent of Rs. 10,000 to 12,000 every year. As a result, in 1938 their margin of profit stood hardly at 7 per cent on their total investment.

Scope : This industry has shown gradual expansion. The demand for trunks is increasing; and with the growth of travelling habits among the public and with the increase in the mobility of labour, it will grow still more. The post-war drive towards industrialisation is likely to achieve this objective. There is however a great need for the manufacture of fashionable steel hand bags. This industry also needs the establishment of a "Trunk Manufacturers' Association" in order to enforce rules and regulations for observation by trunk manufacturers so that the quality of their out-put may not suffer.

Safe and Cabinet Making

About 1920 there were only 2 safe manufacturers at Ahmedabad. But later on, on account of the increase in the demand for safes, new concerns came into existence and at present there are 13 of them at this centre.

Safe manufacturing is also carried on to a limited extent at other centres of Gujarat. But besides safes, they make cabinets and cash boxes as well. So safe making does not form their sole occupation. There are 4 such safes and cabinets manufacturing concerns at Surat, 1 at Nadiad, 1 at Bulsar, 1 at Patan, 1 at Broach, 2 at Godhra, 1 at Deogad Bariya, 3 at Balasinor, 1 at Thasra, 1 at Dakor and 1 at Zalod. From among these concerns, the Zalod and Godhra concerns also make trunks, while the Nadiad concern, in addition to safe and cabinets, manufactures locks, and cash boxes.

Raw materials, Equipment, Etc. : The raw materials required by the Karkhandars mainly consist of the Tata iron, polishing and soldering materials, dyes and dye-stuffs, and coal. They are mostly purchased from the local market. The machinery employed is the same as found in other iron works. It consists of drill machines, cutters, hammers, files, anvil, furnace, tools and electric motor.

Production : The Karkhandar in this industry (a) runs the shop, (b) organises the Karkhana, (c) purchases the required

raw materials and (d) makes payment to the artisans and the labourers. He is therefore the dealer in finished products as well as the organiser and financier of the industry.

For manufacturing a safe 24"x24"x30" weighing 15 maunds 1 labourer and 1 artisan take 15 days. Such a safe used to cost to the Karkhandar Rs. 90 in 1938 and it used to fetch Rs. 105. He therefore earned Rs. 15 on it. To the labourer employed in safe making he used to pay Rs. 1-4 per day and to the artisan Rs. 2-8. Usually a Karkhandar, with an investment of Rs. 5,000 and with the help of 2 or 3 labourers and 2 artisans used to earn Rs. 100 per month in 1938.

After the out-break of war, price of iron rose to an unprecedented level. As a result the Government of India had to intervene. They fixed the prices of most of the commodities like dyes and dye-stuffs, coal, iron ingots, sheets and wires, etc. Besides, on account of inflation there was also a general rise in commodity prices. Hence the cost of living of the masses has risen 3 to 4 times the pre-war level, and the labourers in this industry are now paid Rs. 2 to Rs. 3 and the artisans Rs. 3-8 to Rs. 4 per day. The earnings of the Karkhandars and their investments in the industry have increased at least four times as compared to their pre-war scale. On the whole this industry today maintains about 200 to 225 persons in Gujarat and the average number of persons employed in an Ahmedabad Karkhana comes to 7.

Market : Upto about 1925 traders from Marwad, Delhi and Agra used to visit Ahmedabad to purchase safes and cabinets. But later on these customers have become rare. Therefore mostly the market for safes and cabinets is now local and provincial. Generally there is a greater demand for the cabinets rather than for the safes, as the latter are required only by rich people for the safe-custody of their ornaments and valuables. Cabinets are required for preserving office documents, and iron cupboards for the safe custody of clothes, and the demand for these is naturally greater. About 75 per cent production at most of these centres therefore consists of iron cupboards and cabinets. But as the market for these very heavy and durable articles is limited, generally a safe maker accepts contracts for repairing and welding machine parts.

The Ahmedabad Safe Manufacturers' Association has recently been formed which is of great help to the safe manufacturers of Ahmedabad for securing iron and steel sheets at a fair price. As this is a growing industry it is necessary to form one such association of the All-Gujarat Safe and Cabinet Manufacturers in order to regulate its internal working and especially the quality and price of the output. This will assure standard quality to the customers and stop internal unfair competition.

Bucket, Tub and Tin Manufacturing

In almost every small town of Gujarat the Bohras are engaged in making tins, as also in making photo frames and iron sieves and in repairing stoves and umbrellas. Their earning varies from centre to centre, but it mostly depends upon their capital investment. They used to earn Rs. 25 to Rs. 40 in 1938. But now their earning has risen to Rs. 80 to Rs. 90 per month. In the beginning of the present century our markets were heavily glutted with the foreign buckets and tubs mostly imported from Germany. But when the Tata Iron and Steel Works Ltd. began to manufacture iron sheets, workshops for tub and bucket manufacturing were established in the Western India, first at Bombay and then in Gujarat at Ahmedabad.

Raw Materials : There are at present 4 Karkhanas manufacturing buckets and tubs at Ahmedabad. They only require iron and galvanized sheets, iron wires ('khilasari'), soldering material, and coal—all usually purchased from the local market. In the opinion of the Karkhandars Tata galvanized tin sheets are superior in quality to foreign ones.

Equipment : The machinery employed in this industry consists of a lathe, drilling, stamping and pressing machines, and tools like anvils, hammers, cutters (big scissors), vices, etc.

Finance : The pre-war estimate of the investment of the Karkhandars in this industry, mostly their own money, was Rs. 1 lakh, including cost of raw materials, manufactured stock, equipment, etc. In case of need they take loans from the local shroffs, paying 6 to 7½ p. c. interest per annum. In their opinion the indigenous bankers are of great service to them, while the joint-stock banks are of very little help to the small industrialists.

Labour : In all about 50 workers are employed in these 4

Karkhanas. The artisans and the labourers form parties of 5 to 7 and they undertake to make some fixed lot of tubs or buckets. On an average the artisans used to get about Re. 1-8 to 1-12 and the labourer 10 to 14 as. per day in 1938. Now they earn more—the labourer Rs. 2 to Rs. 2-8 and the artisan Rs. 3 to Rs. 3-4. The artisan is paid on piece-rate but as the labourer often acts as a coolie to bring raw materials to the Karkhanas or take finished products to the market, he is often paid time wages. But in fixing such time wage due attention is paid to the nature of work that he is to perform.

Market : Buckets of the Ahmedabad manufacturers are sold all throughout Gujarat and Kathiawar. The brisk season for their sale is summer. Mostly hardware merchants of small towns of Gujarat and Kathiawar purchase buckets and tubs from the Ahmedabad Karkhandars. Before the war these Karkhandars did experience competition from German goods in this field, which were of superior quality and were sold at competitive rates. Ahmedabad Karkhandars tried to produce buckets of the German pattern, but failed. Therefore this industry requires to be put on a scientific footing. As far as its technique is concerned, it has got to be placed on an equal footing with the foreign concerns. If this is achieved, there is a very good scope for the development of this industry. It would be interesting to note here that these Karkhandars have recently utilised their waste tin plates for manufacturing bobbin shields. If bobbin manufacture is put on a scientific footing and is encouraged, these Karkhandars are likely to be the largest bobbin shields suppliers in Gujarat, since they can manufacture shields with great advantage from waste tin sheets.

Manufacture of Cutlery :

(a) Razor and Scissors Making

Vadnagar* and Umereth† are the famous razor making centres of Gujarat. In the bygone days, they claim to have met all the needs of (i) proper Gujarat as well as (ii) peninsular Gujarat. Even the barbers of distant places like Ratlam and Indore used to purchase Gujarat razors. Upto World War I razors were made on a considerable scale at both

* In Baroda State

† In Kaira District — British Gujarat.

the above centres. But thereafter they lost their markets as foreign machine-made superior quality razors began to be imported in large quantities in India. Consequently, there were only 4 razor and scissors manufacturers at Umreth and 7 at Vadnagar in 1938. The annual output of razors and scissors of Umreth stood at Rs. 1,200 while that of Vadnagar at Rs. 2,000. Artisans who make razors and scissors are all blacksmiths and their earning from razor and scissors making stood at Rs. 15 per head per month in 1938. In addition, they were earning Rs. 8 to 10 per month from the repairs of agricultural implements. Their crude razors with round wooden handles were sold at Rs. 12 per dozen and they were mostly favoured by the village barbers. Razor making was likely to be given up by these artisans within a couple of years, but the out-break of war gave very good impetus to this cottage industry. A foreign machine-made razor, available at Rs. 4 or Rs. 5 in the market before the war, began to be sold at Rs. 27! As a result, about 15 to 17 blacksmiths have also recently organised this industry on a small-scale cottage basis at Ahmedabad, and they are making handsome profits because of the opportunity created by World War II.

Raw Materials, Equipment, etc: Main raw materials required by this industry are old files, coal, and chemicals. Razors and scissors are mostly made out of old files. They are moulded by the crude process of heating and hammering. Their equipment consists of a furnace, wind blower, anvil, hammer, implement sharpening stone, vice, drill, pincer and needles. The cost of razors mostly depends upon the price of old files and coal. The earnings of the artisans in this industry have at present gone up to the extent of Rs. 70 to Rs. 80 per head per month.

Market : Market for the razors and scissors is provincial. As imports of foreign razors, blades and scissors have declined heavily after the out-break of war, razor and scissors making have got an impetus. But when normal conditions are restored and international trade revives, there is little chance for these crude razors and scissors.

These artisans would therefore have to be trained in modern manufacturing methods and they require the necessary machinery to be supplied to them on easy and favourable terms. This industry has very little scope for development on cottage

basis. For even in 1937-38 these articles were imported on a considerable scale in this Province. Adequate measures should therefore be adopted to put this industry on factory basis. If this is achieved, there is a good home market for these products as razors and scissors are now household requirements.

Nut-cracker and Knife Making

Gujarat's present well-known centres for making nut-crackers are Patan and Olpad and its important knife making centres are Amod and Lunawada.

Raw materials required for nut-cracker and knife making chiefly consist of old files, iron sheets (for making handles) and coal. The blacksmiths, with the help of their simple equipment and implements consisting of furnace, wind-blower, anvil, hammer, pincer, vice, drill, sharpening stone, etc., mould steel and iron pieces into the required shape, by heating and hammering processes. Upto about 1929, 25 blacksmiths concentrated on making nut-crackers, but after 1940 only 3 artisans are engaged in this industry at Patan. It is also reported that upto about 1925, 7 blacksmiths were making nut-crackers at Olpad but after 1938 only one is engaged in this industry.

This handicraft received a setback because of the imports of cheap and well polished articles from Japan and Germany. Other and nearer competitors for it are the better quality nut-crackers from Jamnagar, Limdi, Anjar (Cutch), and Aligarh, where machinery has been introduced for certain processes of nut-cracker and knife making, while it is not at all used by the Gujarat artisans. It has therefore become a subsidiary occupation of the Gujarat artisans. After the out-break of World War II there has been a great demand for indigenous knives. This and the increased amount of repair work which they have obtained during these years have raised the earnings of the Gujarat artisans from Rs. 25 to 65 per month. But the enhanced demand is temporary. When normal conditions are restored, foreign machine-made knives are likely to recapture their lost markets. What the penknife and nut-cracker makers need is technical guidance to improve at small cost the finish and shape of their articles. In 1937-38 Bombay's imports of cutlery, especially of locks and knives, stood at Rs. 11 lakhs. This shows that there is enough scope for the developement of

cutlery industries in this Province. But unless these industries are placed on factory basis they have very little scope for development.

Brass and Copper Work

The census returns show that 2,723 persons were employed in brass, copper and bell metal work in Gujarat in the year 1931. But as the production of the bell metal wares has faded into insignificance, it can be easily ascertained that most of the above workers were employed in making brass and copper utensils. This is both a factory and a cottage industry in Gujarat. There are in this Province some metal works solely devoted to the manufacturing of brass and copper vessels. It is however interesting to point out that this industry is almost exclusively located in urban areas.

Leading Centres : The following are the important centres of copper and brass work in Gujarat :-

Centre	No. of Artisans employed	Centre	No. of Artisans employed
Nadiad	400	Dabhoi	50
Ahmedabad	250	Radhanpur	40
Visnagar	100	Cambay	35
Surat	70	Navsari	30
		Amod	17

Prominent among these are Nadiad, Visnagar, Dabhoi, Radhanpur, Cambay and Amod.

Raw materials, Equipment, Etc. : Brass and copper sheets used in the manufacture of utensils are purchased from the local merchants. At times the brass and copper smiths also purchase old utensils and use scrap brass and scrap copper. They work upon this raw material by means of simple equipment which consists of hammer, wind-blower, cutter, pincer, vice, anvil, needles, furance, etc. They also require some chemicals for soldering and cleaning the new vessels. For this purpose they use sulphuric acid, tin, lead, borax ('khadiyo khar'), soldering materials and coal. If the industry is working on a factory basis, in addition to the above equipment they keep in their Karkhanas a lathe and a pressing machine.

Nature of output : Brass wares are now manufactured mostly on machine basis in Gujarat. Among the factory goods,

brass 'tapelas' and 'tops' are to a certain extent imported into Gujarat from Bombay, but the brass 'golis', 'bedas', 'lotas', 'thalis', 'vadakis', etc. are manufactured by the metal factories situated at Navsari, Billimora and Ahmedabad.

The production on handicraft basis is mostly confined to copper articles. It is difficult to mould copper sheets on a lathe. Therefore copper wares like 'bedas', 'pavalis', 'karhrots', 'golis', 'degghadas', 'ghadas', etc. have remained immune from factory production.

Labour Condition : The artisans in this industry are mostly outworkers. The dealers in brass and copper utensils at Ahmedabad, Nadiad, Visnagar, etc. import factory goods and side by side give jobwork to brass and copper smiths. The lathes and pressing machines at these centres, are usually owned by the local big brass and copperware dealers.

The outworkers, that is, most of the artisans in this industry, used to earn Re. 1-4 per day at Ahmedabad in 1938. But as they remained without work for two or three months in a year, their income varied from Rs. 25 to Rs. 30 per month, while the workers in the factory earned according to the nature of their work and their income varied from 10 as. to Re. 1-4 per day. The remuneration of these labourers has increased after the out-break of World War II. The artisans or the outworkers are now getting Rs. 2-8 to 3-8 per day and the workers in a factory Rs. 2 to 3 at Ahmedabad. In Nadiad, Visnagar and other mofussil centres the artisan's income varied from Rs. 12 to 15 per month in 1938, which was lower than at Ahmedabad, as avenues of employment are fewer in the mofussil and the general standard of living is lower. However, after the out-break of war the artisan's income in mofussil centres also increased; it now varies from Rs. 40 to Rs. 45 per month.

For making 4 'pavalas' of 1 maund weight each, if 8 men work for 10 hours, they take 2 days, and used to receive Rs. 4-8 in 1938. But now they are paid Rs. 10 at Visnagar, Rs. 12 at Nadiad and Rs. 16 at Ahmedabad. This war-time increase in remuneration is not likely to continue when normal conditions are restored. Both workers and artisans will revert to pre-war conditions under which they remained idle for about 2 to 3 months in the year. Under the circumstances, it is very necessary to fix minimum remunerations for these people. This objective can only

be achieved if a Brass and Copper Artisans' Association is established in Gujarat. As the artisans are mostly outworkers, in order to stop them from accepting lower remuneration, this Association should prohibit them from having direct dealings with the merchants. It should be made obligatory for the merchants to register their orders with this Association. The Association in its turn should distribute the work among the artisans. This provision should be strictly enforced at least at the important utensils making centres like Nadiad, Ahmedabad, Visnagar, Surat, Dabhoi, Radhanpur, Cambay, Navsari, and Amod.

Market: The dealers in brass and copper utensils in Gujarat (with the exception of Nadiad) are mostly the brass and copper smiths. They sell their products mainly in the local markets. Centres like Nadiad, Ahmedabad, Visnagar, Surat and Dabhoi are often visited by the adjoining village and town merchants for the purchase of utensils. They in their turn sell these goods in their local markets.

The big shopkeepers import ready-made goods from Bombay and place orders for other goods with the local artisans. They purchase brass and copper sheets from the Bombay market and supply them to the local artisans. By 1938 they were realising the necessity of forming their Association through which they could have direct dealings with Continental and Japanese markets for purchasing copper and brass sheets. On the out-break of war the Government of India imposed control over the price of copper and brass sheets and they are made available to the bonafide public through the Government Fair Price Shops.* When control is removed it will be advantageous for wholesale dealers in copper and brass utensils to make direct purchases from foreign markets. This will enable them to eliminate the middleman's profit which considerably enhances the price of their raw material.

The Visnagar artisans† have certain local grievances. Utensils making industry on this side of the Baroda State exists on the handicraft basis. Since it has to compete with

* The price of copper sheets was Rs. 40 per cwt. in 1938, but the present control price of the same sheets is Rs. 102 per cwt. The price of brass sheets varied from Rs. 28 to Rs. 32 per cwt. in 1938, but the present control price of the same sheets is Rs. 100 per cwt.

† Visnagar is one of the important utensils making centres of Gujarat.

unrestrained imports of ready-made factory goods, active State encouragement is needed for the introduction of lathes and presses at Visnagar so that the imports of factory goods can be stopped and a number of artisans can get employment in the newly established factories. There is also an urgent need for introducing polishing machinery at this centre. In its absence the artisans are not realising proper prices for their articles. They also desire the establishment of (i) tinning industry and (ii) a small factory to melt waste sheets, i. e. their scrap brass and scrap copper.

Visnagar is a sufficiently important utensils making centre of this interior part of Gujarat, where the tinning industry has a good scope. This industry also needs to be encouraged at the various other centres of Gujarat, especially Ahmedabad, Surat and Baroda.

Ornaments Making

Goldsmiths are found working in almost all the towns and big villages of Gujarat.* A goldsmith working in a big village gets customers from the adjoining small villages. Mostly he gets repair work or the old worn-out ornaments for reshaping. Compared to the brass and copper smiths, his condition was relatively better in the rural areas. For most of the products of this industry are still made on handicraft basis. Besides, in small villages there are hardly any imports of ready-made silver or gold ornaments, as the 'Choksis' cannot afford to open shops in small localities. Moreover, the villagers have special regard for the word of a goldsmith rather than that of a 'Choksi'. The earning of a goldsmith varied between Rs. 15 to Rs. 20 in the small villages in 1938. But the war has adversely affected him in the rural areas; (i) the high price of gold, (ii) the low standard of living of the villagers and (iii) the congregation of retired, non-earning persons in the rural areas, have put a definite check on his business. He therefore finds himself a fish out of water and whenever suitable

* The 1931 census returns give the distribution of "makers of jewellery and ornaments" according to district, division or State as follows:—Mehsana 1,236, Surat 1,230, Ahmedabad 1,203, Baroda 1,053, Cambay 658; Kaira 634, Navasari 602, Panch Mahals 395, Palanpur 383, Idar 209.

opportunity arises he tries to settle in the urban areas. Besides, in the rural areas hawkers often come and sell imitation or electroplated ornaments of attractive shapes at low prices. Unless these hawkers are forbidden to visit small villages, it is now very difficult for a village goldsmith to get sufficient work for a decent living.

On the other hand, the condition of a goldsmith in the urban areas has definitely improved. With the out-break of war, though the price of bullion has gone very high, the purchasing power of the urban population has greatly improved. They have found employment in the various war-time services and in industrial concerns which are very often working double shift. The goldsmiths in the urban areas therefore earn a lot more than what they used to do before the War.

The following are the leading centres of Gujarat for making gold and silver ornaments:—

Centre	No. of Artisans	Centre	No. of Artisans
Ahmedabad	850	Rajpipla	35
Baroda	522	Radhanpur	35
Surat	300	Bulsar	35
Nadiad	150	Broach	30
Patan*	60	Palanpur	25
Idar*	50	Borsad*	9

Their equipment consists of a hammer, anvil, wind-blower,† cutter, pincer, crucible, dies, tongs, files, touchstone, 'divi', vice, 'jatardi' (for drawing wires), 'jibhi', etc.

At all the above centres excluding Ahmedabad, Baroda and Surat, the artisans, by working for 8 hours per day, used to earn Rs. 22 to 25 per month in 1938; while they used to earn about Rs. 30 to 35 at Ahmedabad, Baroda and Surat. Their income has definitely increased after the out-break of World War II. They are now earning Rs. 60 to 70 at Nadiad, Patan, Idar, Radhanpur, Bulsar, Broach, Palanpur and Borsad; and at Ahmedabad, Baroda and Surat, Rs. 90 to 100 per month.

These artisans have to compete with the ready-made imita-

* Artisans at these centres mostly concentrate on making silver ornaments. They make footwears like 'Kadlas', 'Sankalas', 'Chhdas', 'Todis', 'Bedis', 'Hansadis'. In addition, they make 'Chudis' and 'Kandoras'.

† 'Funkani'

tion and electroplated ornaments and presentation sets sold by the 'Novelty' shops which have now captured about 8 to 10 percent of the indigenous trade in real ornaments. Besides, the artisans in most of these centres are experiencing a great handicap as polishing shops are not easily available to them. Consequently, the quality of their output suffers.

Scope : Goldsmithy is an important urban art craft. Looking to the public liking for putting on ornaments, there is a very good scope for the development of this industry. The size of the industry will considerably expand if the technique of this craft is improved and better dies and better machinery are made available to the artisans. However, imitation ornaments like ear-ring*, nose ring, necklace, bangles, etc. as well as the various presentation sets are at present imported by the novelty shops from foreign countries. These ornaments are mostly electroplated nickel or copper wares. They are factory goods of foreign make and they are sold at considerably cheaper rates in our markets. Our indigenous industry must be protected by heavy tariffs on these articles. This will develop the market for our real ornaments; or else, by creating a more favourable situation for manufacturing imitation products, will give a fillip to the electroplating industry in our country.

* 'Butti' or 'Lavingiya'.

CHAPTER VIII

LEATHER INDUSTRIES :

Tanning

According to the census returns, 20,550 workers were engaged in Gujarat in hides and skins industries in 1931. But the really important class under this head consists of tanners; and their greater congregation is found in the following divisions.

Division	Number of Workers	Division	Number of Workers
Mehsana Division	5,945	Kaira District	1,576
Ahmedabad District	3,593	Idar State	1,445
Palanpur State	1,731	Baroda Division	1,090
		Surat District	976

Ahmedabad, Godhra, Nadiad, Broach, Baroda, Idar, Visnagar, Patan, Surat, Ankleshwar, Vadali, Dholka, Sunkesh, Kachholi and Lilapur are the important tanning centres of Gujarat. Among these centres, Sunkesh, Kachholi and Lilapur are comparatively small, but they are famous because the tanners here produce better quality tanned hides by taking special care in all the processes of tanning.

Organisation : Tanning in Gujarat is both a cottage and a factory industry. In fact there are three types of organisations : (1) the cottage industry as it is carried on in villages (2) small tanneries as they are found in a number of towns and (3) the big tanneries found at Ahmedabad, Godhra and Surat which are classified as factories. Among hides and skins available to Gujarat tanners, 90 per cent of the raw hides are of dead animals and only 10 per cent of slaughtered stock, whereas skins are almost wholly of slaughtered stock. The tanning of skins is therefore mainly an urban industry, while the tanning of hides is both a rural and an urban occupation.

Raw Materials, tools, etc. : In rural areas tanning is mostly carried on in the cottages. Tanners use simple implements like 'rampi', 'koyto', 'kundo' 'knife' etc. They have a few large earthen pots buried in the open ground on the outskirts of villages, having no shade or roof over them. In these earthen pots (better known as pits or 'kunds'), they turn out on an average 5 tanned hides per month. They mostly use muddy water

and during summer there is a dearth of even such muddy water. As tanning agents they use vegetable materials found within the Province, such as 'babul' bark, 'aval', 'turwad' bark, 'ghat bor' and 'ankda-nu-dudh'. In addition they also require salt, lime and sesamum oil which are purchased from the local market.

The cost of the pit is about Rs. 15*. On an average the village tanner tans 5 hides per month and earns Rs. 20 to Rs. 25†. As he does not get enough hides throughout the year, when idle he works as an agricultural labourer. During monsoon he is generally found working in the field. The tanners in the extreme north of the Province—at centres like Dholka, Bavla, Radhanpur, Palanpur, Idar and Lunawada—do not know the lime process. But they are anxious to learn it as they can then produce more polished and better quality hides.

Process : Usually the hide is allowed to soak in lime water for three or four weeks, after which it is divested of hair with ease. It is then saturated several times with a solution of 'babul' bark. But there are grave defects in their tanning process, viz.: (i) the use of crude knives and (ii) the absence of the use of the wooden beam. As the tanners in rural areas do not possess wooden beams and use crude knives while taking out the hair they make several scratches on the hide. Naturally the quality of the hide suffers. In order to avoid such damages, they should use wooden beams costing about Rs. 7 and special knives costing about Rs. 4. Village tanners do not even know about them. State effort is therefore required for the demonstration of these instruments to them.

Market : Market for tanned hides is local as well as provincial. There was a great demand for tanned hides for manufacturing washers at Nadiad, Broach, Kadi and Cambay. But after 1922 American chrome wastage began to be used for manufacturing washers at Nadiad and Broach. There was therefore a great fall in the demand for tanned hides and a number of pits were rendered idle in Gujarat.‡

Scope : The tanners of Gujarat usually tan buffalo, cow

* Rs. 7 pre-war rate.

† He used to earn Rs. 5 to Rs. 7 per month in 1938.

‡ Out of 200 pits only 100 pits are now in working order at Ankleshwar. Similarly a number of pits have been rendered idle at Nadiad, Broach and various other centres.

and bullock hides. But raw skins are generally exported outside the Province. Every year raw hides and skins are exported in huge quantities from Radhanpur, Idar, Palanpur, Lunawada, Baroda, Rajpipla, and British Gujarat. There is therefore a great scope for developing the tanning industry in this Province. Malpractices like (a) application of salt to the tanned hide for increasing its weight, or (b) drying it on the muddy soil with an intention to increase its weight by the application of mud coating on the tanned hide, require to be stopped. Besides, in the interest of the trade and industry, attempts should be made to produce superior quality tanned hides. This requires the introduction of the use of wooden beam and the special knife which are now being used only in the big factories at Godhra, Ahmedabad and Surat. Use of mud water also spoils the quality of the hide. Because of the inferior quality of the indigenous tanned hides, the Province imports superior quality leather, chrome leather, and ready-made leather articles like boots, shoes, sandals, suit-cases, purses, attaches, belts, leather carriers, straps, etc. In their turn these imports have (i) curtailed the markets for the indigenous tanned hides, (ii) lowered their price, (iii) lowered the remuneration of the workers in this industry, and (iv) given impetus to the exports of raw hides and skins. Thus a vicious circle is created. In order to improve the conditions of this industry, it requires to be put on a scientific footing. If this is done, not only is there a considerable scope for developing the tanning industry but there is also enough scope for the development of chrome tanning within the Province.

Shoe Making

According to the census returns there were 4,985 boot, shoe and sandal makers in Gujarat in 1931. Shoe-makers are to be found practically in all the big villages, towns and cities of the Province, but they have mainly concentrated in the following areas :—

Division	Number of Shoe-makers	Division	Number of Shoe-makers
Mehsana Division	1,427	Ahmedabad District	572
Baroda Division	900	Navsari Division	517
		Baroda City	286

The following are the leading shoe-making centres of the Province :

Centre	Number of Artisans	Centre	Number of Artisans
Ahmedabad	400	Radhanpur	40
Baroda	286	Godhra	40
Surat	200	Dahod	35
Palanpur	90	Himatnager	30
Nadiad	60	Idar	30
Visnagar	60	Patan	25
Umreth	60	Lunawada	20
		Bulsar	17

Organisation : At most of these centres the shopkeepers or the master craftsmen engage artisans on piece wage; side by side, there are also independent shoe-makers who with the help of their family members make boots, shoes and sandals and sell them directly to the consumers. Mostly they make these articles to order. But in the big cities like Ahmedabad, Baroda and Surat they often get orders from the local boots and shoes depots and the footwear marts.

Raw Materials, Equipment, etc : The principal material required for this industry is tanned hides of buffalows, cows, bullocks, etc. which are purchased from the local market. They also require superior quality chrome leather, patent leather and willow-calf leather, for making superior quality boots and especially for making their toes. They work upon these raw materials with the help of simple tools and equipment like a sewing machine, thread, nails, needles, laces, anvil, 'kundo', earthen pots, etc.

Labour Conditions : Generally an artisan can make one pair of boots or shoes per day. In 1938 he used to get 8 to 12 as. in small towns, and Re. 1-4 to 1-8 in cities like Ahmedabad, Baroda and Surat. But after the out-break of war there has been a greater demand for footwear. Besides, on account of an all round rise in prices, the artisans in the small towns are now getting Re. 1 to 1-8 while in cities like Ahmedabad, Baroda and Surat they get Rs. 2 to 2-8 per day. The condition of the shoe-makers in the villages is not so satisfactory. They used to earn hardly Rs. 7 to 10 per month in 1938, while

at present their monthly earning varies from Rs. 20 to 25. They usually repair mugs and shoes of the agriculturists and in normal times they obtain from them something in kind rather than in money.

Market : The market for the boots, shoes and sandals is local as well as provincial. Chappals of Dholha are exported to Ahmedabad and even outside the Province to Bombay. However, there are considerable imports of all-leather boots and shoes into Gujarat—at Ahmedabad, Baroda, Surat and various other centres. Until quite recently, (i. e. before the out-break of war) foreign rubber, canvas and other footwear were competing with the indigenous products of the Province. Foreign footwear are of standard quality and they are preferred to the indigenous inferior products. It is therefore necessary to form an Association of the Gujarat shoe-makers for completely stopping such dishonest and suicidal practices as using cardboard and bad stuff in making footwear. To safeguard this industry, it is also necessary (i) to impose prohibitive duties on the imports of foreign footwear; (ii) to increase duties on the exports of raw hides so that (a) the tanning industry might develop within the Province and (b) raw hides may be made available to the shoe makers at cheaper rates; and (iii) to encourage the establishment of chrome tanning factories within the Province which can (a) supply patent, chrome, and willow-calf leather to the shoe-makers and side by side (b) supply chrome wastage to the washer manufacturers; and finally, (iv) to abolish all the State and Municipal duties on the export of the indigenous boots, shoes and sandals. Leather belting (for machinery) and other leather manufactures are imported in large quantities in this Province.* The establishment of chrome tanning factories at suitable centres within the Province is likely to encourage their production. This will give employment to the local artisans and incidentally they will themselves open up the markets for the consumption of the raw hides and skins which are now exported to foreign countries.

* Bombay's imports of leatherwear stood at Rs. 58 lakhs in 1938, of which Gujarat's consumption of pickers, roller skins, skins dressed and tanned, boots and shoes and other leather manufactures is likely to have been about Rs. 35 lakhs.

Washers Manufacturing

History: The iron rolls of cotton gins in Gujarat require washers to press cotton pods and separate cotton and cotton seeds. As cotton is grown over 30 million acres, there are 250 gins in Gujarat which require considerable quantities of washers. This industry is reported to have been established in 1900 at Broach, by about 1907 at Nadiad* and a little later at Kadi and Cambay. In the beginning washers were manufactured from tanned hides. But as these hides are purchased on weight the tanners began to resort to malpractices. They began to apply more salt to tanned hides for increasing their weight. The washers manufacturers were therefore required to purchase more hides for the same output, and it became increasingly difficult for them to compete with the Madras and foreign washers as they could not afford to sell washers at competitive rates. It was therefore feared that this industry had no scope in Gujarat, but the timely introduction of the use of American chrome wastage (better known as 'bakhi') by the Gujarat manufacturers saved the situation. The use of American chrome wastage was first introduced by the Nadiad Karkhandars by 1926 and thereafter the Broach Karkhandars followed their example. On account of this use of chrome wastage as a substitute for tanned hides, the main market of the tanners for their tanned hides was curtailed. They were therefore adversely affected.† But as far as the washers manufacturing industry is concerned, it definitely got a fillip. The sale of chrome composite washers of Nadiad and Broach continued to increase, but the Karkhandars at Kadi‡ and Cambay who manufactured washers from tanned hides gradually lost their markets as their products were comparatively dear. By about 1933 washers manufacturing ceased at Kadi while out of the 6 Karkhanas at Cambay¶ now there are only 2

* Mr. Haribhai Kalyanbhai established this industry in 1907 at Nadiad.

† Vide *ante*, Tanning Industry, p. 172

‡ Chamars (1) Sadha Jaga (2) Lala Kana (3) Dahya Kana (4) Naran Kana (5) Ganpat Lallu (6) Ganesh Punja and (7) Jetha Sundar were the artisans who made washers from tanned hides at Kadi.

¶ In 1926 there were 6 Karkhanas manufacturing washers at Cambay. They belonged to Chamars (1) Bhika Keshav, (2) Vira Ganesh, (3) Dhana Dahya, (4) Dudha Kana, (5) Bhana Kala, and (6) Trikam Jiva. But now only (1) Bhika Keshav and (2) Vira Ganesh are manufacturing washers at Cambay. All others have closed their Karkhanas.

Karkhanas. The Cambay manufacturers are able to retain some of their old customers because of their trade reputation and the quality of their goods. They take enough care to see that in the purchase of tanned hides they are not deceived by the local tanners. They have thus been able to preserve their trade reputation in the local as well as adjoining markets. The gins of Cambay, Petlad, Viramgam, etc. prefer Cambay washers on account of their superior quality and greater durability.

Raw Materials, Equipment, etc : The raw materials required by this industry are chrome wastage or tanned hides, 'mendo' or starch, thread, wire bundles, cloth for packing, and fuel. The equipment of a Karkhandar in this industry usually consists of sewing machines, a press, an electric motor, 'farmas', 'rampis', dies and needles.

Working of the Industry : Before World War II, i. e. in 1938 this industry was thriving at Nadiad and Broach, but after the out-break of war, on account of the stoppage of imports of American chrome wastage, it has received a setback. The following table gives a comparative idea about the working of this industry in 1938 and 1945.

Centre	Karkhanas		No. of persons employed		Annual Output	
	1938	1945	1938	1945	1938	1945
					Rs.	Rs.
Nadiad	3	2	188	25	1,50,000	89,500
Broach	2	2	60	15	75,000	52,500
Cambay	2	2	40	40	45,000	1,75,000
Total	7	6	288	80	2,70,000	2,15,000

The decline in the number of Karkhandars at Nadiad and the decline in the output of the industry at Nadiad* and Broach is simply due to the gradual decline in the imports of American chrome wastage in India. These Karkhandars now obtain chrome wastage from Cawnpore and north India chrome tanning factories. But they only get a limited supply from these centres. Consequently they also manufacture washers from tanned hides, of which however, the price has risen from Rs. 13

* From 3,70,000 ratal washers the production has gone down to 50,000 ratal washers at Nadiad.

to Rs. 32 per maund. Therefore they turn out a very limited quantity of washers from tanned hides at Nadiad and Broach. Another important raw material 'menda' is not available to these Karkhandars; they therefore use starch as a substitute which is now available at Rs. 30 per cwt. The price of stitching thread has risen from Re. 1-1 to Rs. 3 per ratal, while labour charges have also risen. The price of chrome composite washers is now Re. 1-12 per ratal instead of 6½ as in 1938.

Finance : The main difficulty of the Gujarat Karkhandars is of obtaining the necessary capital at a reasonable rate of interest for running the industry. All the manufacturing concerns are proprietary. But most of the Karkhandars are not so rich as to be able to finance the industry from their individual resources. They borrow a substantial portion of their requirements from the local shroffs who charge them interest as high as 9 per cent. They therefore need an organisation which can provide them facilities for obtaining loans at a cheaper rate on co-operative basis.

Market : The markets for Gujarat washers are provincial as well as inter-provincial. Their main inter-provincial markets are in Khandesh, Central Provinces, Nizam's Dominions, Ahmednagar, Nasik and Sholapur.* In these inter-provincial markets their main customers are the mill gin store suppliers to whom they supply goods on 2 months' credit.

Madras is the chief competitor of Gujarat washers in the above markets where it has an upper hand because Madras washer manufacturers obtain chrome wastage from their local chrome tanning factories, while the Gujarat Karkhandars have to import it from America in normal times and thus have to pay more than 30 per cent customs duties and railway freight on their raw materials. Since these imports ceased, they have not been getting sufficient supplies of chrome wastage from Cawnpore and northern India factories. Besides, on whatever quantities they do get they have to pay railway freight, cartage, etc.

Scope : There is a very good scope for the development of washers manufacturing in Gujarat. When normal conditions are restored its output is likely to reach its pre-war level. But the main handicap to this industry is that of obtaining chrome

* Before World War II washers were exported in small quantities to Rangoon and even Africa.

wastage from within the Province itself. In its absence it has to depend upon foreign countries for this principal raw material. Even then as far as Gujarat's provincial markets are concerned, Gujarat Karkhandars have definite advantage over Madras in (i) nearness of market and (ii) absence of railway freight. But as far as the inter-provincial markets are concerned Madras Karkhandars are now able to capture most of the former markets of the Gujarat Karkhandars. Further scope for this industry therefore depends upon the development of chrome tanning industry within the Province.

Pickers Manufacturing

History : Kadi was once a well-known pickers manufacturing centre of Gujarat. It used to export pickers to the different provinces in India. But with the rise and growth of textile mills and pickers manufacturing at Ahmedabad, Kadi lost its former importance and gradually faded into insignificance. Pickers making was first started in 1914 at Ahmedabad.* Gradually more Karkhanas were opened at this centre and now there are 6 Karkhanas employing in all about 200-250 workers.

Organisation : All the Karkhanas in this industry are proprietary concerns. The proprietors are very well-to-do and mostly they have invested their own capital. This industry requires big premises, large investment and employment of a number of hands; and yet it is a cottage craft.

Raw Materials : The raw materials required by this industry mainly consist of raw hides, sodium sulphate, acetic acid, lime, chemicals, nails, wire and sperm oil.

For pickers manufacturing good quality hide of slaughtered cattle is preferred to the inferior quality hide of dead ones. As the Gujaratis are mainly vegetarians, slaughter-houses of adequate size do not exist within the Province. The picker manufacturers therefore purchase buffalo hides from the United Provinces, the Punjab and the North-West Frontier Province. The Punjab buffalo is more sturdy, its hide is therefore of superior quality. It is thicker and it weighs more and is thus best suited for pickers manufacturing. The season for the purchase of hides lasts from March to May as more cattle die during the summer, while monsoon is a very

* By Mr. M. G. Mansuri.

slack season for the production and sale of pickers.

Equipment : The equipment of the Karkhandar consists of pressing machines, drilling machines, punching machines, dies, preliminary pressing machines, files (for drilling), drilling tools, vices, etc.

Processes : First of all dry buffalow hides are soaked in water. Then for dehairing the hides, a paste of chemicals like lime, sodium sulphate, etc. is applied to them. The hides are then cut into pieces of suitable size called 'pharma' and then they are given rough shape and pressed for the first time. After pressing them thrice in this manner, they are knitted, punched and soaked in sperm oil for about 2 months. Thus within 3 months pickers are ready for sale in the market.

Production : About 8 gross pickers are manufactured from 1 kodi or 20 hides. Better quality pickers were sold at Rs. 34 per gross in 1938. But after the out-break of war the price of the raw hides has risen from Rs. 12 to 25 per maund and there is a considerable rise in the prices of all other raw materials as well. The labour cost has also increased. There is therefore a rise in the price of pickers and they are now sold at Rs. 90 to 100 per gross. The total volume of output of Ahmedabad was 12,000 gross pickers valued at Rs. 3,60,000 in 1938. Now it has risen to 15,000 gross pickers valued at Rs. 12,00,000.

Labour Condition : This industry is run on cottage basis. On an average every Karkhana employs 40 to 50 workers. The remuneration of workers varies according to the nature of work. The following table gives a comparative idea of remunerations in 1938 and 1945.

Nature of work	Remuneration in 1938 Rs. per month	Remuneration in 1945 Rs. per month
For rolling and winding (to 'Valatari vala')	44	80
„ cutting	29	60
„ pressing	28	60
„ knitting	32	65
„ nailing	41	80
„ rubbing and shaping (to 'Khuna Bhangnar')	28	60
„ punching	30	60

Nature of work	Remuneration in 1938	Remuneration in 1945
	Rs. per month	Rs. per month
For drilling	30	60
„ giving final shape by using knife	20	40
„ pressing the ends (to 'Dhari Dabavnar')	19	40
„ packing	20	40
To 'Farmavalla'	30	60
For Washing the hides	30	60
„ fetching water	25	50
„ cart driving	55	100
To clerical staff	40	80

The artisans engaged by picker manufacturers are poor and illiterate. They are either Chamars or Bhangis. As the Karkhanas are closed for 4 months during the rainy season, these workers go back to their villages and occupy themselves in farming operations. They return to Ahmedabad as soon as the monsoon is over. Even though they are paid per month, their wages are counted on piece work. The above table therefore gives only the average monthly remuneration of the workers engaged in the various processes of manufacture.

Market : Cotton mills, jute mills and silk mills require pickers. In the textile mills one pair of pickers is required perloom and it lasts for one month. On an average the annual consumption of pickers of Ahmedabad mills stands at 8,000 gross, while that of all Gujarat mills at 10,000 gross. It is surprising to note that 70 per cent of the production of Ahmedabad Karkhanas finds market in other provinces like U.P. and C.P.; while every year Ahmedabad imports a considerable quantity of English pickers. Though these imports have ceased after the out-break of war, Bombay's imports stood at Rs. 7,20,000* in 1938. More than half of them are reported to have been consumed by the Ahmedabad market.

It is however gratifying to note that about three-fourths of the pickers are sold directly to the Indian mills and only one-fourth to the mill gin store suppliers. Upcountry trade is facilitated by Demand Drafts sent through banks, and usually

* About Rs. 22 lakhs if valued on the basis of the present price level.

45 days' credit is given to the upcountry customers who, if they purchase for cash, get 1½ per cent discount.

Scope : Before the war the Ahmedabad manufacturers complained about the severe competition of foreign pickers. Ahmedabad's mill gin store suppliers have established very cordial relations with the local mill managing agents. They get good commission on the sale of foreign pickers and therefore they are in a position to allow some commission to the parties giving orders on behalf of the local mills. Consequently, about 30 per cent of the pickers manufactured at Ahmedabad are sold locally and about 70 per cent are sold in upcountry markets. On account of the present stoppage of foreign imports this industry has shown considerable expansion, but when normal conditions are restored prohibitive duties should be levied on the foreign imports.

The Ahmedabad mill magnates complain about the inferior quality of indigenous pickers. English pickers are of superior quality. They are of even size and more durable. They therefore insist that local manufacturers should improve and standardise their pickers. The complaint is not without foundation. The picker manufacturers do require (i) a roll to press hides in order to make them even in size and (ii) a press, to cut hides into even pieces. If they were to get technical guidance they are quite confident of ousting foreign imports from the Indian markets. Failing this, they insist upon the imposition of prohibitive duties on the export of raw hides which are their principal raw material, so that they can obtain them at cheaper rates. There is also an urgent need for forming a Picker Manufacturers' Association which can lay down rules and regulations for observance by all the local manufacturers. The present system of selling mixed goods in a lot should be given up and in its place sorting of pickers according to their quality and grade should be made obligatory. As Shoulder Pickers* are of inferior quality they should not be put on the market at all. The picker manufacturers are impatient to sell their goods quickly. They therefore do not allow pickers to mature properly by allowing them to remain in sperm oil for six

* Pickers made from hides covering the shoulders of the cattle. Such pickers are of inferior quality because of the uneven thickness of the hide.

months. In this connection, in order to improve the quality of pickers and to make them more durable it is necessary to enforce rules for strict observance by the manufacturers.

The future is bright and promising for this industry. Ahmedabad is the only pickers manufacturing centre in the Bombay Presidency and Gujarat. The Karkhandars in this industry are well off and they are eager to incorporate all the suggestions made to them by proper authorities regarding the technique or processes involved in pickers manufacturing. They are prepared to purchase all the published literature on this industry, if it is made available to them. What this industry therefore needs is proper technical guidance for its development.

Manufacture of Textile Accessories

History : The textile leather accessories manufacturing industry at Ahmedabad is about 60 years old. About 20 years ago there were 20 to 25 Karkhanas or leather works specialised in manufacturing leather textile accessories. These leather works produced roller skins, laces, belts, picking bands, check straps, etc. But on comparison the foreign articles were found of superior quality and they were sold at competitive rates in our markets. As a result, with the passage of time, some of the leather works had to close down and now only 4 Karkhanas are running at this centre.

A. Roller Skins Manufacturing

The principal raw material required in manufacturing roller skins is goat or sheep skins, of which the latter are preferred. Three-fourths of the sheep skins are purchased from the local market. The Karkandars purchase raw skins and tan them in their Karkhanas by using 'turwad' bark and myrobalans. The cost of the locally purchased skins including their tanning charges comes to Rs. 18 per dozen. About one-fourth of the sheep skins required by these manufacturers are purchased from the Madras tanning factories, at Rs. 22 per dozen. In order to make the skins soft they also require fat and castor oil.

Production : They usually make roller skins of 18"×20", 22"×28" and 24"×20" sizes. These skins are glazed by a glass stone and then they are sold in the local market. The leather wastage accumulated in these Karkhanas is sold to local shoe-makers. Roller skins are manufactured in 4 Karkhanas at

Ahmedabad and they employ in all about 20 artisans.

Market : The roller skins are produced in a limited quantity at Ahmedabad. Ahmedabad mills therefore consume a fairly large quantity of foreign roller skins every year.* Locally manufactured roller skins are no doubt cheap, but as regards quality, foreign roller skins are definitely superior. That is the main reason why foreign roller skins are preferred. Though this industry is at present immune from foreign competition, its wartime fillip is bound to be temporary. The artisans in this industry are shoe-makers ('Mochis') who are illiterate and poor. They therefore cannot devise ways and means to improve the quality of their goods. There is thus a considerable scope for the development of this industry, if it is placed on a scientific footing. If this were done, there is a very important local market for its products and there are a number of mill gin store suppliers at this centre who can easily push up their sales in the profitable markets.

B. Manufacturing of Other Textile Accessories

(i) **Leather Laces :** It should be pointed out that side by side with the manufacture of roller skins, the Ahmedabad Karkhandars also produce leather laces. Before the war, oiled laces and dry laces were sold at 12 as. and 10 as. per lb. respectively, while foreign laces were sold at Re. 1-8 per lb. The local laces being thus cheaper in price got the upper-hand in the local market. Consequently, foreign laces have practically lost their footing in the Ahmedabad market.

(ii) **Belts† :** They also manufacture belts from buffalo hides. After the hide is turned into leather, it is cut into belts of required sizes of 1" to 14". The selling price of the belt depends upon its size and weight. The locally manufactured belts are largely used by the textile mills in Ahmedabad.

(iii) **Check Straps :*** This is one of the leather articles required by the weaving section of the textile mills. The check strap is usually of 7½" length and 1 3/4" width. Only one Karkhandar manufactures check straps at Ahmedabad. He employs

* Bombay's imports of roller skins stood at Rs. 7,50,000 in 1937-38 of which a considerable quantity was consumed by the Ahmedabad textile mills.

† M. N. Jakate : *Small Scale and Cottage Industries in Ahmedabad*, (1944 Thesis).

10 artisans who on an average get Rs. 50 to 60 per month.

(iv) *Picking Bands** : Picking bands are used in the weaving departments of the textile mills. Those manufactured at Ahmedabad do not last for more than a week, therefore they are not so popular as belts and laces.

Scope : The manufacture of textile leather accessories has a very good scope for development at Ahmedabad, since it has got the largest number of textile mills in India. There are 88 textile mills at Ahmedabad having 19 lakh spindles and 47 thousand looms and it consumes more than half the quantity of textile accessories imported at the Bombay Port. Though World War II has temporarily stopped foreign imports, the pre-war imports of leatherware of Bombay† stood as follows :

Textile Accessories	Imports in Lakhs of Rs.	Textile Accessories	Imports in Lakhs of Rs.
Pickers	7.2	Boots and Shoes	5.9
Roller Skins	7.5	Other leather	
Skins dressed and tanned	9.1	manufactures	28.6
<hr/>			
Total Rs. 58.3			

The exports of raw hides and skins stood at Rs. 52.2 lakhs. Thus there already exists a local market for the consumption of finished goods and to produce these goods raw material is also available in abundance within the Province. On the one hand the Province exports raw materials in large quantities‡ and on the other it imports finished goods.

This state of affairs naturally leads one to conclude that lack of (i) education and (ii) capital are the main handicaps coming in the way of the development of leather industries.

* M. N. Jakate: *Small Scale and Cottage Industries in Ahmedabad (1944 thesis)*.

† Figures for the year 1937-38

‡ "Tanning materials are available in large quantities in this province; in fact, myrobalans—an important tanning agent—are exported every year in large quantities, while we are at the same time importing tanning extracts and even tanning barks." Report of the Bombay Economic and Industrial Survey Committee, 1938-40, Vol. 1, pp. 142-43.

They are mostly in the hands of illiterate people* who run them on cottage basis. They use crude tools and crude methods. If therefore chrome tanning industry is developed on a scientific basis, most of the subsidiary industries will get an impetus and run with the latest upto date equipments and tools. What is needed is active State aid in safeguarding, guiding and developing the leather industries which even in their present condition employ 20,550 workers.

* Chamars; Mochis, Dabgars and Bhangis.

CHAPTER IX

OTHER INDUSTRIES

Bidi Making

This is a cottage industry which does not require either power or machinery. This industry is carried on in almost all the villages, towns and cities of Gujarat, as the majority of the population of Gujarat is given to smoking. The masses who cannot afford cigarettes as they are costly favour 'bidis'. Naturally with such a huge demand bidi making is one of the major industries of this Province. However, it is also referred to as a non-power industry.

Organization : In each and every village there are outworkers who are supplied raw materials by the local merchants, from which they make bidis and get remuneration on piece-rate. Kaira district is famous in Gujarat for the raising of the tobacco crop and therefore it claims to have many important centres where bidis are made on a large scale. Conditions are different at Ahmedabad, Umetta, Baroda and Surat which have Karkhanas with workers exceeding the limit of 9 and which are therefore classed as registered factories in British Gujarat. By far the most important among these centres are Ahmedabad* and Umetta where these Karkhanas are run on proprietary basis and the Karkhandars invest their personal capital in the industry.

There are about 300 to 400 bidi making Karkhanas at Ahmedabad, employing about 5,000 workers†; and 6 Karkhanas at Umetta employing in all 330 workers. In all in Gujarat there are about 500 Karkhanas employing about 8,000 workers. It is however difficult to form an estimate of the total bidi workers in this Province as among them there are numerous out-workers living in rural areas and small towns.

Raw Materials: Raw materials required for bidi making are

* Ahmedabad stands first and foremost in the consumption of bidis in Gujarat, as it is the leading centre of textile industry where the mill-hands, their womenfolk and children all are addicted to smoking.

† Among whom about 1,500 are women.

powdered tobacco*, 'timru' leaves and cotton yarn†. In addition, the Karkhandars also require 'Devdar' boxes for packing and exporting bidis to outside places. Among the raw materials : (i) for tobacco, the purchasing season is 'Margshirsh' and 'Posh' while that for (ii) timru leaves is 'Vaisakh' and 'Jesth'. The big Karkhandars purchase both in advance and stock them. They purchase standing crops of tobacco for a lump sum from the district agriculturists at cheap rates and import 'timru' leaves from Godhra and Dahod.

Important Products Generally three types of bidis are made in Gujarat. (i) 'Nakhia', (ii) 'Beech-band', and (iii) 'Sadli'.

Working of the Industry The following table gives an idea about the cost of making 1000 best quality 'Nakhia' bidis at Umetta in the years 1938 and 1946.

	1938	1946
	Rs. as. p.	Rs. as. p.
Tobacco	0 3 0	0 12 0
'Timru' leaves .. .	0 3 3	0 11 0
'Dora' (thread) .. .	0 0 3	0 2 0
\$ Labour charges .. .	0 5 0	1 0 0
Other charges .. .	0 0 9	0 4 0
Packing charges, 'Deodar' box, etc., .. .	0 3 9	0 14 0
Allowance for fluctuation in market rate and other accidental charges ..	0 2 0	0 5 0
	Re. 1 2 0	Rs. 4 0 0

These 'nakhia' bidis were sold at Re. 1-4 per 1000 by the Umetta traders in 1938, while today they sell them at Rs. 5-4 or even 5-8.

Labour Condition: The condition of the bidi workers at Ahmedabad and in other centres like Baroda, Surat and Nadiad is comparatively better than of those at Umetta. At Ahmedabad

* 'Jardo'.

† 'Dora'

‡ 'Nakhia' means small, 'beech-band' means the thread is tied in the middle of the bidi instead of at the end, and 'sadli' means ordinary.

\$ It will be interesting to note here that for making 1,000 'nakhia' bidis labourers were paid 10 as. at Ahmedabad, Baroda & Surat in 1938, while today they are paid Re. 1-8 at these centres.

they were paid 10 as. per 1000 'nakhia' bidis in 1938 while they were getting only 5 as. at Umetta. Even today if Ahmedabad workers get Re. 1-8, at Umetta they get only Re. 1. This is because at Umetta these outworkers are mostly in the clutches of Karkhandars and their condition is no better than that of the serfs. Instead of making cash payment the Karkhandars induce the workers to purchase goods on credit from their shops. The same Karkhandars usually deal either in cloth or grain and other household requirements. If the bidi workers want cash, they have to borrow, again from the Karkhandars. Under the circumstances (i) the interest charges on the sum borrowed, (ii) some more price charged for credit facilities given and (iii) cheating in weights and measures and also (iv) in quality of the goods, are the common occurrences which these bidi workers have daily to face. But at Umetta they have no other alternative source of employment which the workers in big cities generally have. If therefore these workers are induced to form an Association and open a Co-operative Bank with State aid their position will improve a great deal.

The efficiency of the worker varies according to his training, health, etc. His capacity for making bidis varies accordingly, from 700 to 1200 bidis per day. The average worker can make 1000 bidis per day. His average earning is therefore Re. 1-8 per day at Ahmedabad, Baroda and other big cities of Gujarat, while it is Re. 1 per day at Umetta and smaller towns. The remuneration in small villages varies between 12 to 14 as.

Market : Bidis are packed in bundles of 25 each and on retail sale they always fetch one pice or two pice more per bundle. Wholesale merchants sell the bidi bundles to retailers in lots of 1,000 per box and also offer them a trade discount. Panwallas are their usual customers, while provision merchants of small towns and villages also stock bidis.

Thus the main market for the sale of bidis is local while a percentage of production also finds market in the adjoining areas. As labour is comparatively cheap at Umetta, its products are sold at Nadiad and even at Ahmedabad. The Ahmedabad bidi makers have also to stand the competition of bidi makers of adjoining rural areas. For in the villages tobacco and labour are available at comparatively cheaper rates and other incidental charges like shop rent, taxation, etc. are nil. However this

is not a very serious source of competition to them, because there is a very heavy demand for bidis in the Ahmedabad market and only the bidi makers of the adjoining villages can supply bidis to it. If the bidis are imported from distant places the cost of transport more or less offsets the advantage of cheap labour.

Taking the average output of a worker to be 1000 bidis per day, the total output of bidis in Ahmedabad comes to 45 lakhs per day.* The output generally suffers in case of the women workers as they remain absent for a number of days in a month. Out of the present 6 lakhs population, presuming 60 per cent smoke 20 bidis per day, the daily consumption of the Ahmedabad market stands at 72 lakh bidis. Therefore in order to meet the daily needs of this city about 27 lakh bidis have got to be daily imported from outside places.

Scope : As regards its requirements of bidis Gujarat is more or less self-sufficient. But even though Kaira is one of the leading tobacco growing districts in India, it is to be regretted that in spite of the efforts of the Government of Bombay its tobacco breed is not improved and Kaira tobacco is not suitable for cigarette manufacturing. Consequently, on the one hand Gujarat imports cigarettes worth lakhs of rupees† every year and on the other, it exports its inferior tobacco in raw form. This situation requires to be improved. Added efforts should therefore be made to grow superior quality tobacco in this region so that cigarette manufacturing can be undertaken with advantage. In this connection measures adopted by the Mysore Government should be carefully studied and the Government Tobacco Breeder at Nadiad should be given necessary financial aid to carry out intensive experiments on a bigger scale. The progress of the Western Tobacco Company at Baroda in their products should also be watched with interest.

Soap Making

In this region this industry exists on a cottage as well as factory basis. Laundry soap making does not require any

* In Ahmedabad the total number of bidi workers is estimated at 5000 of which 1,500 are women

† Net consumption of cigarettes of the Bombay Province was of 24, 85, 072 lbs. in the year 1937-38 and a substantial quantity from this likely to have been consumed by the Gujarat population.

technical skill; therefore villagers often make soaps for their personal use in their own houses. But it is more or less a seasonal industry as the rainy season is not suitable for soap making.

Organization : Soap making is carried on on a proprietary basis in Gujarat and the owner of a Karkhana generally his personal capital in this industry.

Raw materials : Raw materials used in laundry soap making are lime, vegetable oils, washing soda and silicate of soda. In addition fuel is also required for heating purposes for mixing the various ingredients.

Equipment : The equipment required in manufacturing washing soap is not at all costly. It consists of a furnace* cement, a pressing machine, iron pan† and iron 'khumchas'.

Important Centres : Important soap making centres of Gujarat are Ahmedabad, Prantij, Surat, Baroda, Broach, Nadiad, etc.

Working of the Industry : For a long time Prantij has enjoyed fame as a leading soap making centre of Gujarat. Here soap making is carried on on a cottage basis. In the good old days when railways had not been constructed in Gujarat, Prantij soap used† to be exported to Ahmedabad even by carts. But after the introduction of washing soap manufacturing at Ahmedabad, its demand for Prantij soap has declined. Prantij has however certain natural advantages. It gets (i) mahura oil from Modasa and (ii) better quality lime and (iii) silicate of soda‡ from the outskirts of the town. In addition (iv) labour is also comparatively cheap at this centre. Therefore it is able to withstand competition of other soaps in the Ahmedabad market. There are at present three big and two small Karkhanas at Prantij producing soap worth Rs. 10 lakhs per year** and their yearly raw material requirement is estimated at Rs. 6 lakhs.

Labour : The various processes of soap making require employment of various hands to attend to them. Thus one

* 'Kundi'

† 'Kadals'.

‡ 'Golas' or Round Cakes.

¶ 'Us'.

** Prantij's pre-war production stood at Rs.2,20,000 and raw material requirements at Rs.1,80,000.

person is required to fill hot liquid from 'bhathi' into convenient vessels for allowing it to cool,† while some persons are required for other various processes like (i) kneading‡, (ii) weighing‡, (iii) 'gola' making‡, (iv) printing and arranging.‡ According to the nature of the process, the remuneration of the labourer varied from 5 as. to Re. 1-4 in 1938; now it varies from 14 as. to Rs. 2-8 per day.

Effect of War on this Industry: On account of the total stoppage of foreign soaps during World War II this industry has shown signs of development at the various centres of Gujarat. The remuneration of labourers has also increased, but so also has their cost of living and the cost of raw materials.

Scope: The soap manufacturers need expert guidance for manufacturing toilet soap. For even though during the last two or three decades small washing soap factories have been established within the Province at Ahmedabad, Surat, Baroda, Navsari, Sidhpur etc.¶ all their attempts to manufacture superior quality toilet soap have failed. If some scented soap is made by them, it is found to be inferior to foreign soaps. Under the circumstances, in the absence of a good toilet soap factory within this Province, a considerable quantity of such soap is imported from other provinces as well as foreign countries. Bombay's pre-war import of toilet soap stood at Rs. 5 to 6 lakhs per year and a considerable quantity of this soap must have been consumed by Gujarat.

Clay Work

At the outset it should be realised that clay work has not attracted due attention from the people of this Province. That is because it is mostly in the hands of illiterate and poor potters.*

† 'Tharnar',‡i, 'Masalnar',‡ii, 'Tolnar',‡iii, 'Pind Karnar',‡iv, 'Gothavnar'.

¶ In the Directory of the Large & Small Industrial Establishments in Baroda State during the year 1936-37, mention is made of 3 Soap Factories at Baroda of which the Baroda Soap Factory employs ten persons, the Sarita Soap Works five & the Gujarat Soap Works one. All these factories employ manual labour and do not use any motive power. Similarly at Ahmedabad there are 4 or 5 big and 15 to 20 small factories and a comparatively larger number of persons is found at work in the big factories.

* 'Kumbhars'.

There are a few brick and tile works in the Province, catering to the needs of the localities concerned; and during more recent times two pottery works* have been established which manufacture mangalore tiles. The major occupation of the potters of Gujarat is of making earthen pots, bricks and tiles. This they can do with advantage during winter and summer as rainy season is not at all suitable for making earthenware.

Organisation : Pottery is essentially a cottage industry and in addition primarily a rural occupation. The potters are generally independent artisans who make pots and other articles of clay for domestic use.

Raw Materials and Equipment : For making earthenware, the potters require special quality red or black clay, fuel and water. They make use of donkeys for bringing clay and fetching water and also for carrying ready-made articles to the market. As for their equipment, they require an open space and a 'bhathi'† specially prepared by them. They also require earthen dies‡ and a spinning wheel.** As they require more space for making earthenware and their furnaces require open spaces, generally they reside in the outskirts of the village or town.

Remuneration : From their occupation they hardly earned Rs. 8 to 10 in 1938, but now with the general rise in commodity prices and the cost of living their income has increased to about Rs. 25 to 30 per month. During rainy season they usually work as agricultural labourers.

Market : With the increase in the use of brass and copper vessels the demand for earthenware has declined. Their crude 'lota', crude 'bowl', etc. are no longer in demand and the demand for their pitchers has also gone down. On the whole pottery as at present practised in the Province is in a distressing state.

Scope : It must be pointed out that there is a great and growing demand in the Province for glazed earthenware and crockery which is at present being met by foreign imports or by crockery from other provinces. The possibilities of starting this industry at Ilol†† or at Rajpipla‡‡ should therefore be explored.

* (1) The Tiles and Pottery Works Co. Bilimora, employing 90 persons and (2) The Phoenix Pottery Works Gandevi, employidg 62 persons. † 'Nimbhado'. ‡ 'Biba'. ** 'Chak'.

†† "In this Taluka red, yellow and white clays (ochres) are available in good quantities." — Ilol State Administration Report, 1931-32.

‡‡ "Clays well suited for high class pottery occur in the tertiary beds (Contd. on next page)

Note on Patan's Clay Work

Patan was once famous for its clay work throughout India. The potters of Patan make clay figures of (i) national leaders, (ii) animals like dogs, deer, horses, etc., (iii) insects, (iv) reptiles; and in addition they make (v) 'dhupias', 'pikdanis', 'mevadanis', etc. They also make clay figures of frogs, tortoise, fish, etc. which are so devised as to be able to swim in water.

Upto the beginning of the 20th century when the art of toy making was not so developed in the various parts of the globe, these articles served a very useful purpose as toys for little children. Patan potters used to export these toys and in addition earthen pipes to places like Ahmedabad, Baroda, Surat and even to Bombay. It is reported by these Patan potters that before World War I they used to export Rs. 1,000 worth toys to the above places. But with the passage of time their exports have declined and in 1938 the export was nominal, their annual sale being hardly worth Rs. 400 in that year. After 1919 there was also a gradual decline in the prices of their toys; they had gone down by more than 60 per cent between 1919 and 1938.* This was because with the increase in imports of foreign rubber and celluloid toys, the market for these indigenous toys was curtailed.

Special Handicaps : In comparison with Patan's toys, foreign toys are found more attractive, more durable and also of superior material. Being made of clay Patan toys are not at all durable. So with the availability of better toys, Patan's clay toys lost much of their hold over the market, more so since the potters did not improve in time their art or their technique. They badly need to improve colouring work. As a result, toy making is now only a subsidiary occupation for Patan's potters who for the major part of the year engage themselves in at numerous places in the Jhagadia and Valia Talukas But those occurring to the west of Damlai appear to be of the best quality. -- P. N. Bose : Notes on the Geology and Mineral Resources of the Rajpipla State, 1932.

* The following table gives an idea of the fall in prices of the various Patan toys :

Article	1919 price in as.	1938 price in as.
Elephant figure	3	1
Deer ,,	6	3
Dog ,,	2	1
Serpent ,,	8	3

making earthen pots. The Baroda Kalabhuvan authorities should therefore explore all possible avenues to put this industry on a scientific footing by (1) improving its technique and (2) trade organization.

Making Matches

Short History : As regards the Match industry, it should be noted that several attempts have been made in the past to establish this industry at various centres of Gujarat but they have not been successful. The growth of the match industry in Gujarat (like other parts of India) followed the doubling of the import duty on matches in 1921. By 1935 the number of match factories had therefore increased to 9 * but by 1938 it again fell to 5. This reduction was mainly due to the rise and growth of the Western India Match Factory which claims to its credit 78 per cent of the total output of India. This concern has been able to eliminate a number of small concerns from the field.

Working of the Industry : Making matches is wholly a factory industry in Gujarat. Particulars regarding the working of the match factories in Gujarat are as follows:-

Name of the factory	No. of days of active work	Quantity of Match Boxes turned out Boxes Gr. Doz.	No. of persons employed
† The Husein Yaver Match Works, Cambay	112	969-5-0	200
† The Cambay Match Works, Cambay	208	5,218-0-0	275
† The Harihar Match Works, Cambay	..	481 gr. of Bengal lights 1995-34-6	..
‡ The Datar Match Works, Petlad	..	5,97,448 grs.	192
‡ The Bilimora Match Factory, Bilimora	..	47,945 grs.	..

* Thus the (i) Gujarat Islam Match Manufacturing Co.Ltd and (ii) Surati Match Works of Ahmedabad, (iii) Hindu Islam Match Factory of Kapadvanj and (iv) Hindustan Match works of Surat, worked for a short period and then they were closed. That is how at present there are only 5 match works in Gujarat out of which 3 are situated at Cambay, 1 at Peltad and 1 at Bilimora.

† Cambay State Administration Report 1937-38.

‡ Baroda State Administration Report 1939-40.

Special Handicaps of the Industry : This industry maintains about 1,000 persons today. But if it is developed on a scientific basis it is likely to maintain a much greater number. Gujarat forests are reported to contain large quantities of the wood which is suitable for making splints and veneers. But in the absence of further investigation the Gujarat factories get most of their requirements from the Central Provinces. This adds considerably to the cost of their raw materials. In particular, the Rajpipla forests do afford good field for investigation as regards the availability of the required soft wood.† If the supply of soft wood is assured from within the forest resources of Gujarat, this industry will at once show signs of development. Proper steps should therefore be taken in this direction, so that cheap soft wood may be available to this industry.

Scope : Making matches is an important cottage industry in the province of Madras and the possibilities of its development in cottage form in Gujarat remain to be investigated. If it could be introduced in that form, considerable employment could be provided in the Panch Mahals and Surat districts of British Gujarat and in the Rajpipla, Jambughoda and Devgad Bariya areas.

Glass Industry

Glass industry is still marking time for its development in Gujarat. It exists on cottage as well as factory basis in this Province. But as far as the cottage side of this industry is concerned, it is on the verge of extinction, while as regards the factory side, it is still in its initial stages of growth, for it was established in this Province as late as 1935.

Organization: Glass as a cottage industry is run on a proprietary basis and in this connection Kapadvanj is the only centre known for its glass bangles for over two centuries in Guja-

† It would be interesting to note that the Bombay Economic and Industrial Survey Committee inquired from the match factories about the utility of the soft wood, especially the simal wood, of the Panch Mahal Forests in making splints and veneers. But they were informed that this wood was not suitable as splints made from the Bombay variety did not retain natural whiteness, but went red or black after some time. Vide their Report, Vol. I, p. 80.

rat. Upto 1919 there were about 30 artisans who made crude glass bangles known as 'dudhia bangadi' from glass sand imported from Allahabad. They also made bangles from liquid glass obtained by heating broken bottle pieces. But at present there are only two Karkhandars engaged in making bangles at this centre.

Raw Materials : These artisans require broken pieces of glass such as of bulbs, globes, mirrors and soda water bottles; lead and soda ash; and coal and wood. Broken pieces of globes, mirrors, etc. are collected from streets by the municipal sweepers and those of soda water bottles are gathered by the owners of aerated water factories especially at Ahmedabad. From these people Kapadvanj Karkhandars purchased bottle pieces at about 6 pice per maund* and globe pieces at 6 as. a maund* in 1938, but now they pay for the same 9 as. and Rs. 2-4 respectively.

Equipment : Their equipment is very simple. They require pipes, fire bricks, moulds and a furnace specially constructed for melting broken glass into liquid glass. The per-war cost of this equipment was estimated at Rs. 2,000

Products : They make (i) crude bangles known as 'dudhia bangadis', (ii) rough bangles and (iii) 'abhla' or small mirrors. The season for making glassware lasts for only 2½ months, for it is only in winter that they receive most of their orders.

Labour : These Karkhandars employ 10 to 12 labourers for helping them in the various processes of bangle making.† The remuneration of the labourers varies according to the nature of their work. It varied from 8 as. to Re. 1 per day in 1938. Now it ranges between Re. 1-4 and Rs. 2-8 per day.

Market : The demand for the Kapadvanj bangles has declined with the imports of better quality bangles from Czechoslovakia, Belgium, Japan and Germany. Besides, some glass factories in India have also begun to manufacture superior quality bangles. However, the market for Kapadvanj bangles still exists in rural areas of the Panch Mahal and Kaira districts and also in Kathiawar and the Nizam's Dominions. There shepherd women still put on 'dudhia' bangles and apply small mirrors‡ to their dresses for decorative purposes.

*Maund means 40 seers.

†These Karkhanas generally work for only 2½ months in a year, that too, in winter.

‡'Abhlas'

Scope : The demand for the old type of goods is fast declining.* Therefore the technique of production needs much improvement to suit modern requirements. The crude bangles made from broken glasses visibly show their joinings and cannot therefore withstand competition from the attractive and polished bangles of factory make. Besides the cottage Karkhandars themselves are not expert artisans. They need such training as will help them to improve the quality of their bangles. If not, their industry is likely to disappear altogether.

Glass industry on factory basis, however, has a very bright future in this Province. For, on the one hand raw materials like glass sand† and chemicals and also cheap labour and markets are assured to it within the Province, while on the other hand glass products like bangles, mirrors, glass sheets, etc. were imported on a considerable scale every year before World War II. That was because there was only one glass works run on factory basis in Gujarat,‡ established only in the period immediately preceding the war. It produces very attractive and polished bangles which can easily withstand the competition of foreign bangles in the Indian markets. There are no two opinions as regards their finish and lustre. Therefore with the total stoppage of foreign imports, this factory has made a very good progress during recent years, and being confident about the success of his enterprise, the proprietor of this factory has also floated one company with the help of State authorities at Chhota Udepur. It is thus certain that glass industry on factory basis has come to stay within this Province, and all visible signs forecast its expansion in the near future.

Pharmaceutical Industries

A Short History : Indian Scientists of by-gone ages have laid at the disposal of the world physicians their important and

* The total sale proceeds realised by a Karkhandar at Kapadvanj was about Rs. 6,000 and his total expenditure about Rs. 5,000 in 1938. Therefore his average earning was about Rs. 85 per month.

† Quartz sand suitable for manufacturing glass occurs in several parts of the Baroda State, e.g. in (i) Vijapur Mahal, (ii) the Songir and Lachharas and (iii) Sankheda Mahal—vide *ante*, p. 7.

‡ Crystal Glass Works established at Sant Road by Mr. Gaur. This factory at present employs 94 persons.

highly valued document, Ayurved. It is a book which discusses at length medicinal properties of every herb, shrub, plant, creeper, and tree. The manufacture of Ayurvedic medicines is carried on in this country from very ancient times. References have been made in the Puranas to the divine physician Dhanvantary who wanted to save King Parikshit from the poison of snake bite. But this industry appears to have existed on cottage basis and on proprietary principle as the Indian physicians used to make medicines in their own houses. The two centuries preceding the Sepoy Mutiny of 1857 have been marked for political upheavals and unrest as well as insecurity of life in India. During this period the Indian physicians could not work with the same zeal and could not maintain the same spirit of research. Therefore as years rolled on Ayurvedic principles began to be neglected and Ayurveda lost its hold on the minds of Indians. Western patent medicines began to find favour in the Indian markets.

Recently, however, efforts have been made to revive public interest in Ayurveda by pioneers like Zandu Bhatji, Naginlal Shah, and Jatashankar Trivedi. It is due to their efforts that this industry has now developed on modern lines in Gujarat.

Organisation : Because of the peculiar nature of the industry, most of the pharmacies in Gujarat are run on Kar-khandari system and proprietary basis. The owner is usually a physician who knows the art and the technical processes of making medicines. He appoints paid assistants and labourers to help him in his work, and generally invests his own capital. No doubt sometimes, with a view to increase the output, he borrows money from private firms, but such instances are not very common.*

Raw Materials: The raw materials required are mostly the leaves, stems, roots and fruits of the various plants. They are purchased from the local dealers. Most of the herbs are generally purchased in the rainy season.

Equipment: The equipment required by the physicians is

* The following are the prominent pharmacies of Gujarat:- (1) The Gujarat Ayurvedic Pharmacy and (2) The Dave Pharmaceutical Works having branch offices at Ahmedabad, Surat, Bombay & Rajkot. (3) The Ghanashyam Pharmacy Ltd. Baroda. (4) The Unza Ayurvedic Pharmacy, Patan. (5) The Gandhi Pharmacy, Modasa. Besides, there are about 20 small pharmacies in Gujarat like Kapadia Pharmacy, Ahmedabad, Tribhuvan Pharmacy, Ahmedabad, etc. which cater to the needs of the local markets.

not very costly. They require big premises where a number of workers are engaged in grinding, powdering, kneading, mixing, weighing and measuring the various ingredients. For these processes they require marble stones, 'kharal', 'kharani', 'dasta' grinding stones, sieves, gunny bags, wooden planks, etc., as also packing materials such as wooden boxes, lables, paste, nails, etc.

Production: The production is made for sale as well for stocking. When the medicine is usually in great demand it always pays to manufacture it in large quantities. Thus on the whole the volume of output of a particular medicine depends upon its public demand*. The brisk season for manufacturing medicines starts from the month of October and it continues right upto the end of April, during which most of the medicines are manufactured and stocked for the whole year.

Labour: More labourers are employed during the brisk season of production. Therefore labour is not permanent in this industry. Workers were paid 8 to 10 as. in 1938; now they get Re. 1-8 to Rs. 2 per day.

Market: For most small pharmacies the market is purely local, except where they have sales depots or branches in other centres. There is little internal competition among the Ayurvedic medicine manufacturers, since mostly it is because of their trade reputation that they are able to find customers in the markets. Local physicians as well as the physicians of the adjoining areas also help a great deal in popularising their medicines. To these physicians they therefore give trade discount for the medicines they purchase.

Scope : Foreign patent medicines have made heavy inroads in the Gujarat markets. The Chemists and Druggists in almost all the towns of Gujarat stock foreign medicines, while Gujarat's forest wealth in herbs and plants still remains to be utilized. The development of Pharmaceutical Industry will not only help to utilize this forest wealth, but it will also afford

* The volume of output is also determined by the extent of capital investment. Thus in 1937 the total output of the Dave Pharmaceutical Works was Rs. 30,000, while that of the Gujarat Ayurvedic Pharmacy stood at Rs. 1 lakh in the year 1938. The Gujarat Ayurvedic Pharmacy is the biggest pharmacy in Gujarat employing about 100 persons and manufacturing about 700 medicines. Its equipment is estimated to have cost more than Rs. 15000 in the pre-war days.

a source of employment to the people of this Province. This industry has immense possibilities in Gujarat which claims more than 1½ million acres of forests at its disposal. Besides, Ayurvedic medicines are comparatively cheap and thus within reach of the masses. The only assurance required by the public in this connection is about their quality. If this is guaranteed, markets for Ayurvedic medicines will immediately widen. This objective can be realised by forming an All-Gujarat Pharmacies Association that can devise rules and regulations for observance by its members. It can also help in making active propaganda for popularising the use of Ayurvedic medicines and in making representations to the Government for protection as against foreign patent medicines.

The paucity of technicians with expert knowledge of Ayurveda seems to be the chief difficulty of this industry. There is therefore a great need for opening a good Nursery in Gujarat which can (i) carry out further investigations into the medicinal properties of shrubs, plants, trees, etc., (ii) explore the possibilities of utilising herbs in evolving new medicines and (iii) devise standard formulas for popular mixtures.

Paper Making

A Short History : Paper making on Cottage basis has practically died out from Gujarat. Once Gujarat was well known all throughout India for its handmade paper. Paper makers† of Ahmedabad as well as Baroda, Patan and Ankle-shwar had established very good trade reputation as regards the quality of their paper and their honest dealings. Naturally they were held in high esteem in society. It was after 1492 when Ahmedshah converted Rajnagar* into the Capital that 'Kagadis' were attracted to it from all over the Province and Ahmedabad became the leading centre of paper making industry in Gujarat. The various State Departments required a considerable quantity of paper. Hence there was a very good local market for paper in Ahmedabad. During these days the dealings of Ahmedabad Kagadis were so vast that their investments for raw materials sometimes ran into lakhs. They needed capital for (i) the purchase of raw materials,

* 'Kagadis'.

† i.e. Ahmedabad

(ii) the payment of wages to the labourers, (iii) stocking the goods and (iv) selling them to the upcountry merchants on temporary credit. With the rise and growth of this industry the indigenous shroffs began to finance it. Some of them even began to reside in 'Kagadipura'. During these good old days it is reported that about 600 families of Kagadis were engaged in paper making at Ahmedabad.

But by the latter half of the 19th century they began to feel severe competition from foreign machine made paper. It was available at a comparatively cheaper rate and it was very attractive. They therefore could not withstand its competition. Besides, in the beginning of the 20th century, paper mills were established in different parts of India*. Consequently the fate of paper making handicraft of Gujarat was sealed for ever. By 1921 there were only 7 Karkhanas in Ahmedabad, and today there are only 2. At all the other centres of this Province, paper making as a handicraft has been given up. Most of the Gujarat Kagadis are now working as dealers in foreign paper or as book-binders.

Organisation : There are only 2 handmade paper Karkhanas in Gujarat and both of them are situated at Ahmedabad. They are proprietary concerns. The Karkhandars invest their own capital in the industry and supervise all the processes. Paper making is a seasonal industry because waste paper used as raw material requires a thorough wash for removing ink and dirt before it is made into pulp. The washing is done generally in the river, for which its water when in flood during the rainy season is not at all suitable.

Raw Materials : The raw materials required for paper making are waste paper, soda, soap and bleaching powder. For glazing, starch is required.

Equipment : The equipment of a Karkhandar usually consists of a 'kundi' for keeping paper pulp, mat ('sadadi'), white clay ('khadi') and brush ('kuchada'). The equipment is hardly worth Rs. 50.

Working of the Industry : For making 300 'gha'† paper 30 mounds paper pulp is required, which generally needs 42 maunds waste paper. The cost of production of 300 gha paper

* Including Gujarat Paper Mills, Ltd., Barejadi, in Ahmedabad District.

† 'Gha' means a quire or 24 sheets. The word is used only in the singular.

at Ahmedabad for the years 1938 and 1946 is given below :-

	Total cost			
	1938		1946	
	Rs.	as.	Rs.	as.
1. Waste paper 42 maunds (Rs. 2½ per maund in 1938 : (Rs. 10 per maund in 1946)	105	0	420	0
2. One artisan employed to help in all the processes was paid Re. 1-8 per 10 gha in 1938, but he is now paid Rs. 2-8 for the same quantity.	45	0	75	0
3. Two labourers employed for cutting the paper were paid Rs. 2 per 100 gha in 1938, but now they are paid Rs. 4 for the same quantity.	6	0	12	0
4. Carriage charges for taking waste paper to the river.	12	8	22	8
5. Soda, soap, etc. for washing waste paper. Generally they require 3 maunds per 100 gha. (Available at Rs. 3 per maund in 1938 but now at Rs. 9.)	27	0	81	0
Total Rs.	195	8	610	8

This paper was sold at 12 as. per gha in 1938 and they got about Rs. 225 for 300 gha of non-glazed paper. The income of the Karkhandars therefore was Rs. 30 per month in 1938. At present this paper is sold at Rs. 2-4 per gha, leaving to the manufacturer an average income of Rs. 64-8 per month*. It N. B. The rent of the Karkhana is not taken into consideration, for the Karkhandars are working in their own premises.

* In the beginning of the year 1944 when foolscap paper was sold at anna 1 per sheet and Re. 1-6 per quire in the black market, the price of the handmade paper had risen to Rs. 2-12 per gha. The handmade paper is ordinarily of double the size of foolscap paper. A Karkhandar's income at that time was about Rs. 100 per month and he had to pay per maund 13 to 14 as. more for purchasing waste paper.

should however be realised that it was only in the year 1944, when the price of paper had gone very high, that these Karkhandars could compete successfully with factory made paper and earned about Rs.100 or more per month. During that year the paper handicraft showed signs of development in almost all centres in India. But as the price of paper has subsequently gone down, the remuneration of these Karkhandars is not so satisfactory as to encourage them to develop their industry.† Besides, with (1) further relaxation of the control price and (2) the availability of more factory made paper, the present black market rates are bound to be adversely affected. Most of the war-time advantages in favour of handmade paper were solely due to paper scarcity and once this scarcity is gone, most of the markets for handmade paper will automatically disappear.

Future : It is said that in 1928 the annual production of handmade paper at Ahmedabad stood at 20,000 gha.‡ But thereafter there was a precipitous decline in the production of handmade paper. In 1938 it stood at only 7,200 gha. Thus it was only the war-time scarcity that created a temporary situation in favour of a successful working of this industry. As compared to handmade paper, factory paper is cheaper, and more polished. It is also available in suitable size and weight. Handmade paper is thus one of the decaying industries of Gujarat and unless other factors intervene, the demand for handmade paper can only decrease as the output of factory made paper increases.

Agate Stone Carving

For Agate stone carving Cambay is the seat of historical importance in Gujarat. It is the only centre where this craft has been carried on from very ancient times. Foreign travellers who visited India in the days of Moghul Emperors have referred to it in their memoirs. However, no systematic attempt is as yet made to study the conditions of the agate stone carvers who are responsible for the rise and growth of this industry.

Organisation : In all about 365 persons are engaged in

† The price of foolscap paper today stands at 10 as. per quire and in order to withstand its competition handmade paper ought to be sold at or even less than Re. 1-4 per gha.

‡ The price of handmade paper in 1928 was almost double than that ruling in the year 1938.

this industry and according to the nature of their occupation they can be further classified as under :-

1. Merchants selling read-made agate articles
(These merchants hire the services of expert carvers for making various agate articles in their Karkhanas.) 10
2. Independent agate stone carvers or Karkhandars
(These artisans make agate ornaments in their Karkhanas and at times they also hire the services of other artisans for helping them in making agate ornaments. Afterwards they sell these products in the various leading centres of Gujarat.) 50
3. Cutters or 'Khondva Valas' who cut agate stones into pieces of required sizes 150
4. 'Ghasias' who work on the lapidary's wheel .. 100
5. Drillers or 'Sar Padnar' (known as 'Sallis' or 'Vindhars'.) 30
6. Polishers* or 'Pattimars' who polish agate articles by hand process 25

365

Raw Materials: Agate stones are not locally available. Therefore two or three Karkhandars of Cambay join hands and put a combined order for their requirements. Usually they give order to the Rajpipla or Adadra agate quarry owners and at times to the Morvi merchants. Generally they give an order for a lump sum of Rs. 2,000 to Rs. 3,000 and when their lot arrives they divide it among themselves.†

* 'Pattimars' polish agate articles. Polishing means smoothening the edges of agate beads. There was a special class of Pattimars engaged in this special process at Cambay. But after 1934, with the introduction of power driven tub, the hand process is practically given up. Hence most of the Pattimars are rendered unemployed. But there are certain articles ill suited for polish in an electrically driven tub, such as holders, knives, daggers, etc., since they are likely to break in the process. Hence the hand process still persists in polishing such articles for which they require the services of Pattimars.

† It is very difficult to make out the quality of these stones from their outward appearance. For this they are put in an earthen pot and
(contd. on next page)

Equipment: The implements used by the artisans in this industry are simple and not very costly. The rough stone is sawn with a small saw and and chiselled with the help of iron spikes and horn-handed hammers. It is then polished. Fine instruments like diamond drills are however necessary for making certain articles like beads, cannons, etc.

Important Products: The Cambay artisans make cups, saucers, vases, pens, card racks, ink-stands, knives, daggers, swords, handles, paper cutters, paper weights, etc. But more delicate and fine articles are made chiefly for the ladies' wear. They are necklaces, wristlets, armlets, brooches, rings, ear-rings, studs, buttons, amulets, etc.

Labour : Because of the gradual decline in the trade of agate articles the remuneration of the labourers was going down from year to year. In 1922 Khondva Valas who cut agate stones into pieces of required sizes used to earn Rs. 2 per day. But in 1938 their income was hardly 8 to 10 as. per day. World War II has given temporary relief to these workers. With the rise in the demand for goods and services they began to earn more (just like their fellow workers in other industries) and on an average they now get Re. 1-8 per day. They get remuneration on piece-rate and that too per 1000 agate stone pieces.* The following table gives an idea about the remuneration given to them for cutting agate stones into pieces of required sizes in the years 1938 and 1946.

baked in cow dung fire. Then the stones are cut at one end and sorted out according to their varieties, e.g. white, yellow, black, green, or 'doradar' (i.e. having stripes of different colours). All the stones turned to ashes or not picking up any colour during the process of baking are thrown away. The process of baking is repeated once again, if the stones are required to pick up more colour. But under no circumstances they are baked more than twice, for in doing so they are generally spoiled and rendered useless.

- * Generally agate stones are cut into four different sizes: (1) First size is suitable for making the variety known as 'modan', i. e. big beads; (2) the second for 'kanthi', i. e. small beads (generally required for necklaces); (3) the third for 'tasbi', i. e. still smaller beads (of about tulsi beads size); and (4) the fourth for making 'anguthinu nang', that is for making the stone suitable for adjustment in a ring.

Variety No.	Name	Remuneration per 1000 pieces	Remuneration per 1000 pieces
		1938	1946
I	'Modan'	Re. 1-8	Rs. 4-8
II	'Kanthi'	Rs. 4-0	12-0
III	'Tasbi'	4-0	12-0
IV	'Anguthinu Nang'	4-0	12-0

At the most an artisan can make 300 'modan' pieces in a day, for it is his duty to give proper shape to these pieces.* Even though more remuneration is offered for making the 2nd, 3rd, and the 4th varieties, they take more time in making them; hence remuneration practically remains the same for making all these varieties. These agate stone pieces are afterwards passed on for smoothening, polishing and drilling to (i) a Ghasia (ii) a Pattimar and (iii) a drillert† respectively.

Market : There are only 4 merchants at Cambay who export agate articles to the different parts of India.‡ Their estimate of the total annual requirement of agate stones is Rs. 15,000 per year, and of the total output of agate articles is Rs. 20,00,000.† The raw material requirement seems to have practically remained the same during the war period and so also its output. But the variation in (i) the price of raw materials and (ii) the value of output, is due to the general rise in commodity prices and also in the labour charges.

* 'Falla padva'.

† The average earning of these workers in the years 1938 and 1946 is given below :-

	Remuneration per 100 'modans'		Average capacity per day	Average earning per day	
	1938	1946		1938	1946
Ghasia	12 as.	Re. 1-4	150 'modans'	Re. 1-2	Re. 1-4
Pattimar	used to get 6 as. per day in 1938, but now he earns about Re. 1-2 per day.				
	For drilling		Average capacity per day	Average earning per day	
	1938	1946		1938	1946
	per 'modan'	per 'modan'			
Vindhar	9 ps.	1½ as	20 'modans'	15 as.	Re. 1-4

‡ Before the out-break of World War II they also exported agate ornaments to Africa where their main markets were in Nigeria and the Gold Coast.

Scope : The Cambay merchants experienced depression in their trade in the beginning of World War II as they lost their markets in Africa. But later on, on account of the prevalence of the high price of gold and silver, a greater demand was created for agate ornaments within India. This has enabled them to make good profits from their trade. What is more, as the price of bullion is not likely to fall in the near future, the same demand for agate articles is bound to continue from the Indian markets. Also their trade with Africa is likely to be resumed. With such favourable circumstances, the immediate future is already guaranteed to this industry and it is likely to employ more hands in order to increase its output to meet the growing demand.

† Their pre-war estimate of the total agate stone requirements of Cambay was Rs. 10,000 per year and that of the total output of this industry was Rs. 6,00,000

CHAPTER X

PROBLEMS OF ECONOMIC DEVELOPMENT

We shall now attempt a brief survey of the entire resources of Gujarat as revealed by our study. Situated on the West Coast of India, Gujarat lies between $20^{\circ}.3'$ and $24^{\circ}.5'$ north latitudes and $71^{\circ}.3'$ and $74^{\circ}.4'$ east longitudes. The region has an area of 33,798 square miles, a population of about 77 lakhs and an eastern coast line of 200 miles. Being bound on the North, East, and South by the Abu, Aravali, Vindhya and Satpuda hills, Gujarat's topography resembles a sloping roof. There is a gradual slope of land from east to west; therefore all the Gujarat rivers flow in the same direction and meet the Gulf of Cambay. The climate of the Province is 'monsoon climate'. As the clouds of the south-west monsoon first dash against the Sahyadri Mountains, South Gujarat receives 60" to 100" rain, the Narbada Valley 40" to 50", and as we reach the northern region of the Province rainfall goes on declining. It records about 35" to 40" around the regions of the Sabarmati and the Mahi and 0" to 20" around those of the Banas. On account of the scanty rainfall and nearness of the deserts of Cutch and Thalparkar, the climate of the extreme north is intensely hot in summer and intensely cold in winter. As there is a gradual slope of land from east to west, it is an uphill task to construct canals or water reservoirs for irrigation purposes. This task is rendered still more difficult on account of the fact that the Gujarat rivers are deep and therefore have very steep and high banks. During monsoon all the rivers and streams are flooded. These floods drain away the soil, destroy crops, and cause considerable loss of human lives and cattle; and yet, not even a beginning has been made towards finding a solution for the problem of checking these floods. As years roll on, the problem is becoming more and more acute. As the mouths of the rivers and streamlets open in the Arabian Sea, many creeks have been formed on the coast line. These creeks afford good outlets to the sea and they have been responsible for the rise of roadsteads like Sarod, Kavi, Tankara, Sajod, Hansot, Bhagwa, Maroli, Navsari, Matwad and Dandi. Fishing is carried on at these centres in the good old fashion.

But if it is developed on modern lines, fish skins, fish oil, fish manure, etc. will be made available. Besides, if the State policy is favourable, salt and alkaline products can be manufactured on a very big scale on the Gujarat coast. If the roadsteads are developed they will also afford a convenient outlet to the agricultural produce of the hinterland and side by side they will play an important role as the distributing centres of trade. The coastline of Gujarat is thus likely to play a very important part in the future industrial regeneration of the Province.

As regards forest wealth, Gujarat is comparatively better off than several other provinces of India. It has more than 1½ million acres of forests of which about 1 million acres are good and reserved forests. Soft and hard wood is available in sufficient quantity in these forests. Moreover, these resources are capable of further development by the adoption of afforestation policy, introduction of the 'coupe' system and extension of the reservation areas. No attempt has been made as yet to make commercial use of all the existing forest produce. Consequently, immense loss and wastage of plant life takes place every year and herbs and shrubs wither away without being put to any industrial use. It is necessary (a) to analyse the chemical properties of all these plants for the manufacture of Ayurvedic medicines, and (b) to utilise the existing wood resources by developing various industries like paper, toy, furniture, match, ship building, etc. As raw lac is exported in large quantities from the Panch Mahals and Rajpipla forests, there is great need for establishing lac refineries at Godhra and Rajpipla.

Gujarat is poor in metallic ores. Except manganese ore no other ore is as yet commercially exploited within the Province. Coal is not available in the vicinity of the iron ore. Therefore cost of fuel comes in the way of working the iron mines. But the Province is gifted with red, yellow and white ochres, crude soda, lime and stone mines. If their commercial possibilities are explored, these resources are capable of further exploitation. In this connection the possibilities of developing the pottery industry also deserve careful investigation. As mining is carried on in a very unsystematic manner, every year there occurs enormous loss of mineral wealth. Proper roofing arrangement, use of modern implements and employment of expert mining hands are some of the measures which can be conveniently

adopted in order to stop this waste.

As regards agriculture, out of the total 13½ million acres of land under cultivation; only 44,000 acres, i. e. 3 per cent, is irrigated.* In this irrigated area a second crop is possible, while in the remaining 97 per cent cultivated area only monsoon crop is raised. The absence of irrigation facilities and hence the inadequate water supply to land acts as a great hindrance to the development of agriculture. Therefore, in order to increase food supply, greater attention should be paid to the construction of wells, dams and tanks at suitable places within this region. Besides, 2 million acres of land are lying waste in the Province. Wherever possible this waste land needs to be utilized for pastoral, agricultural, or plantation purposes. It is also necessary to improve cattle breeding and encourage poultry farming and fishing within this Province.

As regards population, of the total 77 lakh persons living in Gujarat 35 lakhs are workers, among whom 26 lakhs are employed in the exploitation of animals and vegetation which means mainly agriculture. Agriculture is thus the very backbone of Gujarat's economic life. Preponderance of agriculture and rural economy is further brought home from the fact that out of the total population of Gujarat only 19 per cent lives in urban areas, while 81 per cent lives in rural areas. Industries account for the employment of only 3½ lakh persons. Of these workers, the only large-scale industry of the Province, that is the textile mill industry, employs 1 lakh persons; small registered factories 1½ lakh persons, and the remaining 1½ lakhs are cottage workers.

These figures themselves bespeak the great urgency of undertaking a drive towards industrialisation. It should again be recalled that according to the population statistics,† out of about 50 lakh persons belonging to the working age group, the above classification covers the 35 lakh workers already employed in one or another form of economic activity within this Province. But what about the remaining 15 lakh non-workers belonging to the working age group? Ways and means will have to be devised to provide them with work in the future plans for industrialisation.

* It is irrigated in the sense that it gets water supply mostly from wells.

† Vide *ante*, Economic Background, p. 32.

The greatest handicap in the development of agriculture, industries and trade is inadequate transport. As yet no attempt has been made to develop the roadsteads of Gujarat ; while out of the total 10,000 miles roads in the Province hardly 3,000 miles are motorable in fair weather. The remaining 7,000 miles roads are more or less cart tracks. Out of the total 1,720 miles railways British Gujarat and Baroda claim 1,469 miles; while the rest of Gujarat has hardly 250, which is very inadequate. Under the circumstances, Gujarat's economic resources—whether forest, mineral agricultural, or industrial—will simply mark time for their development until swifter means of communication are made available to the interior regions. At present a number of villages in Gujarat are cut off from the outside world during monsoon. About 83.3 per cent villages of Surat district are cut off from urban areas during the rainy season; the condition in the interior Gujarat is still worse. In the absence of adequate transport facilities farmers do not get a fair price for their produce, and great variations occur in the price of staple food grains at the various centres of the Province. It is thus clear that development of transport facilities especially in the Gujarat States has lagged far behind the requirements of the times.

Population and Food Supply

There has been a rapid increase in the population of Gujarat during the last six or seven decades. This naturally raises the question whether the food production is growing proportionately. The table at the top of the opposite page shows the growth of population during the last six decades and also gives a conservative estimate of the growth during the present decade.

The population has increased by a larger percentage during the last two decades and the same tendency is likely to persist during the present decade. Even a conservative estimate of 12 per cent growth of population during the present decade gives us a population figure of 9,232,000 for 1951. The total area under cultivation of foodcrops in Gujarat as a whole was 6,000,000 acres during 1935-40—2,480,215 acres in British Gujarat and the rest in Gujarat States. The per acre crop yield figure is not available for the latter, but taking a clue from the total yield of 583,313 tons of foodgrains in British Gujarat for

Gujarat's Population from 1881 to 1941

Year	Population	Increase or Decrease in population during the ten years' period
1881	6,900,016	
1891	7,695,715	+ 11.5 p. c.
1901	6,105,895*	- 20.6 p. c.*
1911	6,512,622	+ 6.6 p. c.
1921	6,873,718	+ 5.6 p. c.
1931	7,711,450	+12.1 p. c.
1941	8,868,000 (our conservative estimate)†	+ 15 p. c.

1941,† we get 1,410,000 tons as the total outturn of foodgrains in the whole of Gujarat, during 1940-41.

British Gujarat‡

Year	Net cropped area (acres)	Increase or Decrease in net cropped area (percentage)	Outturn in tons. Average of 5 years with census year as the central one	Increase or Decrease in outturn (percentage)
1930-31	4,255,056)		690,554	
1940-41	4,492,161)	+5.5 p.c.		-15.5

Population of British Gujarat

Year		Increase in population during the decade
1930-31	3,223,727	
1940-41	5,092,713	+26.9 percent

It would be realised from the above statistics that despite an increase of 5.5 p.c. in the area under foodgrains and pulses between the period 1930-31 and 1940-41 in British Gujarat, the total foodgrains production declined by nearly 15.5 per cent,

* This heavy decline in 1901 can be attributed to heavy starvation and death toll taken by the famine of Samvat 1956 ('Chhapanio Dukal'), i. e. A. D. 1900.

† Growth of population in British Gujarat from 1931 to 1941 is of 26.9 per cent as its total population increased from 3,223,727 to 4,092,713. But growth in Gujarat States between 1931 and 1941 is 15.2 per cent as it increased from 1,269,000 to 1,457,000. Therefore taking 15 p.c. to be the average growth of population for the All-Gujarat area we arrive at the above estimate.

‡ See Foot Note ‡ on next page.

while the population of the same area increased by 26.9 per cent. The same tendency is likely to hold good for Gujarat States. This decline in the fertility of soil must be arrested by making use of better manure and seeds. In addition, in 1951 more than 1 million more mouths will have to be fed than in 1941. There is thus an urgent need for taking to intensive as well as extensive cultivation. The former objective can be achieved by increasing the water supply to land by constructing wells, dams and tanks wherever possible and the latter by making as much use of the existing 2 million acres of waste land as is practicable.

PROBLEMS OF INDUSTRIALISATION

Large-scale Industries

The only really large-scale industry within the Province is textiles, especially textile mills, which altogether employ more than one lakh persons. We have already studied the problems of this industry in detail in Chapter IV; and we have made several suggestions for setting up this industry on a scientific footing after giving due consideration to the fact that the mills have mostly worn-out and hence defective machinery, as also the fact that only untrained labour is available to them. What this industry needs is drastic rationalization and reorganisation. We claim that the suggestions put forth in this book deserve

‡ British Gujarat.

Year	Gross cropped area	Net cropped area	Food grains Average acreage of food crops of 5 years census year as central	Outturn Average outturn of 5 years with the census year as central	Population
	(acres)	(acres)	(acres) figures	(tons) figures	
1900-1	2,554,419	2,499,642	not available	not available	2,702,099
1910-11	3,239,144	3,353,852	2,103,061	672,270	2,803,074
1920-21	3,842,134	3,794,901	2,112,895	602,817	2,958,849
1930-31	4,453,103	4,255,056	2,392,977	690,554	3,223,727
1940-41	4,677,721	4,492,161	3,480,215	583,313	4,092,713

Figures taken from the Season and Crop Reports and the Census Reports.

careful consideration by the Government of India when they formulate a uniform plan for the growth of large-scale industries within the country and accordingly allot priority of claims to this industry in Gujarat. In this connection, the Central Government may also find this region more suited for the establishment and growth of cement, alkaline, fishing, ship-building, oil, leather, paper, match, and iron industries on large-scale basis. But it rests with them as to how much and how far a preference is to be given to each such large-scale industry in the various regions of India. Hence, leaving the problems of the large-scale industries to the care of the Central Government, it would be better for us to concentrate more upon the problems of the small and cottage industries of this region, since these naturally depend upon the Provincial Governments for protection, guidance and development.

Small Industries

It has been revealed in our discussions that many cottage industries, rural as well as urban, have experienced wholesale or partial decay in Gujarat. Small industries run by steam, oil, or electric motive power, which are of comparatively recent origin have however, on the whole, shown signs of development and expansion. These can be grouped under two heads, viz. (i) preparatory and (ii) manufacturing. Flour mills, rice mills, pulse mills, oil mills, etc. fall into the first group and are mostly proprietary concerns. They are spread over almost all parts of Gujarat and they cater to the needs of the localities concerned. At times crop failure acts as a great check upon their working for then they can be worked only partially. The second, more important group, that of manufacturing industries, comprises powerloom factories, hosiery mills, metal works, etc. A common handicap from which these industries suffer is of procuring sufficient capital at a reasonable rate of interest, which prevents them from introducing technical improvements in their working, and as a consequence the quantity and the quality of their output suffer. The absence of easy capital, cheap electric motive power and technical guidance has stifled the growth of many small industries, though as a matter of fact there is great scope for them in the various parts of the Province.

The powerloom industry is faced with the special problem

of acquiring sizing plants of medium types, for lack of which they are unable to undertake production of cloth requiring sizing and calendering, but can only produce mercerised yarns which do not require sizing. In the case of iron and steel products, the factories manufacturing mill machinery parts are comparatively better off than those making agricultural implements and cutlery. It should also be recalled here that during World War II, among the metal wares, iron and steel products paid more to their manufacturers than did brass and copper wares. For though the Government of India controlled the price of iron, brass and copper sheets, among the finished products they imposed control only over brass and copper wares, leaving the price of iron and steel products to the discretion of the manufacturers.

Among metal industries we find no small factories specialising in the manufacture of locks, sharp instruments, or scientific apparatus. In their absence there is a considerable consumption of imported wares within this Province. The possibilities of starting these industries should therefore be investigated.

Cottage Industries

The cottage industries are widely scattered within this region. They suffer from various handicaps of which the most important is that of obtaining raw materials. The artisans in metal work depend upon the imports of iron, brass and copper sheets; the artisans in wood-work, upon the imports of wood from forest areas and the artisans in the leather work do not get good quality hides as large purchases are made from the district markets by rich middlemen on behalf of the city firms and therefore only poor quality hides are available to the local tanners.

Pickers manufacturing is a growing industry at Ahmedabad but the manufacturers have to import good quality buffalo hides from the Punjab and United Provinces. In the absence of chrome tanning factory within the province shoe-makers depend upon the imports of willow calf and patent leather, and washers manufacturers upon the imports of American chrome wastage. During World War II the shoe-makers and the washers manufacturers therefore worked under conditions of distress.

The handloom weavers use throw shuttles rather than fly

shuttles, the tanners use very crude knives, not knowing the use of wooden beams, the oil crushers have not changed the size of their 'ghanis' for improving their mechanical efficiency, while the metal workers and wood carvers have not fully availed themselves of the latest inventions like lathes, turning machines, or polishing machines.

The high cost of the local supply of raw materials, use of antiquated tools and implements, and employment of untrained labour are the important handicaps coming in the way of the quality of products and low costs. Lack of finish and uniform quality have definitely curtailed the markets of the cottage products. That is why foreign knives, nut-crackers, razors, etc. get the upper hand in our markets.

In order to enable our cottage products to withstand the many-sided competition, all efforts should be directed towards (a) reducing their cost of production and (b) improving their quality. What they mostly need is (i) rationalisation of the technique (which in most cases means inducing the artisans to use modern tools and implements), (ii) technical training (for increasing the efficiency of the cottage workers) and (iii) change in the types of products.

It is gratifying to note in this connection that efforts are being made by the Bombay and Baroda Governments to demonstrate especially to the handloom weavers and the tanners the use of better equipment and tools. Some effort is also made by the Baroda Government to induce wood carvers to improve the patterns of their products. The Baroda Government has established a Sales Depot for the sale of cottage products of the poor artisans of the State, while the Bombay Government has established the Northern Division Co-operative Association for the sale of handloom cloth of the artisans residing within British Gujarat.

These measures will achieve the desired objective if, side by side, greater co-operative effort is made in the direction of (a) removing the indebtedness of the artisans and (b) providing easy capital to the cottage workers for the purchase of modern equipment and tools. A general relief in octroi duties will positively encourage various small-scale and cottage industries dependent upon yarn, brass and copper metal, tanned leather, dyes and dye stuffs used in calico printing, metals used in iron and

steel industry and so on. Except in British and Baroda State territories, State effort, in the directions of (a) co-operative movement and (b) demonstration to the cottage workers about the use of modern tools and equipment, is conspicuous by its absence. It is therefore necessary to adopt adequate measures for the development of small and cottage industries within the rest of Gujarat.

It should also be realised that except Baroda all other Gujarat States lagged far behind British Gujarat. as regards their drive towards industrialisation. Except Baroda and Cambay* other Gujarat States could not boast of having any large-scale factories within their territories. If British Gujarat and Baroda areas are excluded, of the total 1½ lakhs of persons employed in Small Registered Factories in Gujarat, the total number employed in the remaining Gujarat areas dwindles down to only 7000; for the development of these areas, the Bombay Government should therefore devise ways and means to improve road and rail communications and evolve schemes for their industrial development. If a proper atmosphere is created for the growth of industries, tanning, furniture making and toy making have a bright future within the Province. Textiles, hosiery, engineering, metal works, fishing, dairy, starch making and pharmaceutical industries have recently shown signs of development.

Income and Standard of Life

Viewed from the point of yield per acre Gujarat compares favourably with some parts of India. Besides, Gujarat is the leading seat of the cotton textile industry. Therefore Gujaratis are considered to be (i) economically better off; and (ii) their standard of living is supposed to be comparatively higher than that of the people in the rest of India. However, facts reveal altogether a different tale. Out of the total population of 77 lakhs 42 lakhs are non-working dependants who do not work at all but depend for their livelihood upon the remaining 35 lakhs who are engaged in some form of economic activity in this region. Of these 35 lakhs who work, about 26 lakhs are engaged in the exploitation of animals and vegetation which means mainly agriculture. As regards the income and standard of life of these workers we get some glimpses in the rural surveys of the different

* In Cambay there is one textile mill employing 666 persons.

villages and talukas of Gujarat undertaken by the research workers in the past.

During his survey of the Atgam Taluka in 1926-28 Mr. Mukhtyar* found the standard of living of a 'Kaliparaj' family, consisting of 1 adult male, 2 adult females and 2 children, to be very low. The income per family was Rs. 285 per year and this amount was mostly spent under the following heads : Rs. 208 on food, Rs. 40 on clothing and Rs. 30 on lighting, smoking, intoxicants, etc. The staple food of a Kaliparaj is rice of inferior quality, mostly Nagli and Kodra. The price of food grains dominates the total cost of living in his budget. In the rainy season he catches fish from the brooks. His dress is meagre, usually a loin cloth, a 'khes', a cap and a pair of shoes. This is his community dress and he sticks to it. Smoking is a more important item for him than fuel and lights in his house. But the most important item of expenditure in his budget is toddy and liquor. The average indebtedness per Kaliparaj family was Rs.153.

As compared to a Kaliparaj family, the average income of an Ujaliparaj family consisting of 5 persons was Rs. 438 and the average cost of living per family Rs. 361 per year. The staple food of an Ujaliparaj family is rice and juwar. They spent on an average Rs. 246 on food, Rs. 80 on clothing and Rs. 35 on lighting, smoking and intoxicants. In matters of clothing there is an appreciable difference. A male member of the Ujaliparaj family usually wears a coat, shirt, dhoti, etc. The average indebtedness per family was Rs. 230.

If the income of Ujaliparaj and Kaliparaj families was considered together the average income per family in Atgam village was Rs. 306 while the average expenditure per family Rs. 334. The people of the Atgam village were therefore not able to make both ends meet by their earnings in the village. There was therefore a continuous annual exodus of people from this village to outside areas for supplementing their meagre earnings from land and the people of the village had to depend upon external sources of income.

A little later Mr. Shukla† in his survey of Olpad Taluka

* Mr. G. C. Mukhtyar: *Life and Labour in a South Gujarat Village*, 1930; pp. 221-241.

† According to Mr. Shukla a Dubla family's—consisting of five members—minimum requirements were the following per year :

† (contd. on next page)

between the years 1929-32 found that on an average the minimum requirement of a Dubla family among the Kaliparaj was Rs. 200 per year and of a Koli family among the Ujaliparaj Rs.375, of a Kanbi family Rs.475 and of an Anavil family Rs.550 per year. But the income of a cultivator's family in Olpad was Rs. 282 per year whereas the expenditure was Rs. 375! Mr. Shukla's investigations related to such Kaliparajs as had economic holdings. The position of the cultivators of uneconomic holdings can just be imagined when it is realised that in Olpad Taluka, out of every 10 cultivators 8 were working on uneconomic holdings!

The above two surveys depict the condition of the agriculturists of South Gujarat viz. Talukas in Surat District, during the last decade. About the same time between the years 1929 and 1930 Prof. Kumarappa's survey of Matar Taluka* in North Gujarat in Kaira District revealed that the income per family† for the whole Taluka worked out at Rs. 67, or Rs. 14 per head per annum. The village surveys of the last decade have thus revealed a very unhappy state of affairs as regards the conditions of the masses in rural areas. If at present the average condition of the agriculturist is taken into consideration, despite the rise in prices of agricultural crops the rise in cost of living has affected him adversely. He is now required to pay Re. 1 per day to the agricultural labourer instead of 4 as. as during the pre-war days. His cost of living has also risen four times the pre-war level and the total rural indebtedness of Gujarat at present stands at Rs. 35 crores‡. The burden of indebtedness hangs heavily upon the masses in rural areas. Unless and until it is removed and their holdings are consolidated into economic units and cheap credit for productive reforms in

* J. C. Kumarappa: *A Survey of Matar Taluka*.

† Consisting of an adult male, an adult woman & three children.

‡ Vide *ante*, Agriculture, p. 51

(contd. from page 219)

	Rs.	as.	p.		Rs.	as.	p.
I. Food	126	0	0	IV. Miscellaneous :			
II. Clothes	36	0	0	Smoking ...	21	0	0
III. Fuel and Light	6	0	0	Other ...	16	0	0
					<hr/>		
					Total	205	0 0

J. B. Shukla : *Life and Labour in a Gujarat Taluka*, 1937, pp. 268-270

agriculture is made available, it is very difficult to raise the income of the agriculturists upto the required minimum standard. As things are today, the purchasing power of the masses in this Province is so low that they cannot afford a well-balanced and adequate diet.

Industrial workers seem to be less unfortunately situated in this respect. Though industries hardly employ $3\frac{1}{4}$ lakhs of workers, the 1 lakh of workers employed in the textile mill industry receive considerable dearness allowances. On an average their per capita income has risen from Rs. 25 per month to Rs. 70. Similarly the workers in the small factories now receive more than double the pre-war remuneration. They now get Rs. 50 to Rs. 60 in powerloom factories, hosiery mills, paper mills, etc. The workers in textile mills and in the small factories are therefore better placed today. On account of the location of their factories in urban areas and their contact with the workers in large-scale textile mills the workers in small factories have been able to demand higher wages. But this is a temporary phase and it should be pointed out in this connection that the condition of the artisans in rural areas especially of the handloom weavers, shoe-makers and tanners has not improved to the required extent. Before the war they hardly earned Rs. 7 to Rs. 10 per month; now they earn Rs. 25 to Rs. 30. But though their remuneration has increased, they hardly get enough to meet the increased cost of living. The goldsmiths in rural areas are adversely affected as they do not get enough work. They are now round pegs in square holes. From the point of view of employment and remuneration the carpenters and the blacksmiths have definitely been gainers. The war departments required them badly and they began to pay them Rs 3-8 per day at the minimum. Their average earning therefore rose to Rs. 100 or Rs. 125 per month. This heavy demand for carpentry and blacksmithy has induced many artisans to move out from their villages to the places where their services are better appreciated and needed. On the whole the condition of the workers in large-scale industries, small factories and of the artisans, especially carpenters and blacksmiths, has improved. But the condition of village shoe-makers, tanners and weavers has not improved to any desired extent and the goldsmith's position has actually worsened.

Policy

Gujarat is not an administrative unit inasmuch as it represents the merger of the smaller Gujarat States into the Bombay Province and the separate political existence of the Baroda State. Therefore a separate economic policy for Gujarat as a whole cannot be worked out. However, from the point of view of the development of the country as a whole, the full development of the natural resources of each region is fundamental. It is necessary, as a first step, to make a reliable estimate of the various natural resources. Thereafter a programme of economic development has to be worked out so as firstly to raise the standard of life of the people of the region and secondly so as to subserve an agreed scheme of priorities with reference to the needs of the country as a whole.

The main handicap in this direction is the multiplicity of political and administrative jurisdictions. These have to be unified if an integrated policy for the whole region is to be implemented. This has been done in the case of Railways and Post and Telegraphs and it will have to be done with reference to Roads, Irrigation, Development of Forests, Soil Conservation, etc. Whether any special corporations distinct from the existing political authorities can or should be set up for this purpose is a question which demands further investigation. The point however is that the economic development of Gujarat as of any other region depends upon a new active policy on the part of the State. We have indicated in the course of the various chapters some of the steps which the State will have to take to achieve this end. It remains only to be added that any such steps or measures must proceed from a properly conceived scheme of policy. For, as experience has taught us, individual measures, even if excellent in themselves, produce but little result unless they are accompanied by other measures not only in the same field but also in other related fields which are working towards the same objective.

In this connection it is interesting to review the plan for the development of the countryside recently put forward by the Government of Bombay. The main objective of the plan seems to be to benefit those areas which have been large recruiting grounds for the defence forces during the War. While in itself the re-employment of and assistance to demobilised men may be a

desirable objective, it cannot be taken to be the chief objective of any proper scheme of planning. The real objective of a correct policy is the economic development of all the regions within the Province from the point of view of long-term needs and possibilities. Besides, these proposals have not taken any definite shape as yet. As far as British Gujarat is concerned only proposals for the post-war reconstruction of the Bulsar Taluka are available. They aim at improving the conditions of the rural masses viz, the agriculturists by increasing irrigation facilities, improving cattle breeding, adopting schemes for land improvement, and encouraging village industries, especially weaving and tanning which are subsidiary to agriculture. In order to improve the marketing conditions and obtain fair prices for the agricultural produce, a road development scheme is also in view. A suitable scheme for electrification of the rural areas is also envisaged. If the latter is achieved, there is every likelihood of development of small industries in rural areas. Powerloom factories, hosiery mills, oil mills, flour mills, etc. will begin to operate in big villages and these villages will fast grow into small towns. However, as already observed, at present only proposals for the Bulsar Taluka are available, while for other Talukas of Surat District and also for the remaining districts of British Gujarat no survey has been attempted, nor have any proposals been forthcoming. What is therefore needed is concerted action and a co-ordinated plan regarding the development of the countryside for all Gujarat; and, of course the Bombay Province.

It may be admitted that in any region there are always specially backward areas or peoples which the Government would do well to concentrate upon. The problem of the economic uplift of the aborigines and other backward communities in Gujarat is an instance in point. It should however be emphasised that the economic problem of Gujarat is one of fundamental reorganisation—reorganisation, for example, of the agricultural economy so as to eliminate parasitism and to restore the incentive to the actual tiller of the soil. This will mean, among other things, an extension of the application of the Tenancy Act and other measures of rural reform enacted by the popular ministry during 1937–38. It may only be remarked here that the success of even the short-term food production policy which

the new Government propose to adopt will depend to a considerable extent on the initiation of such long-term measures. In regard to industries the problem is to work out the economic possibilities of different industries—large-scale, small-scale and cottage, to assess the contribution they can make to the solution of the problem of unemployment and the reduction of the pressure on land, and then systematically to foster their growth. The creation of suitable means of transport and communication is ancillary to the development of agriculture and industries. They have also a value in opening up new avenues of employment. The extension of social services like education, medical relief, etc. would also add to employment opportunities but have in general a wider objective, viz. that of promoting a better economic and social life.

The full utilisation of the natural resources of Gujarat is thus seen to be a part and parcel of the problem of economic planning on an all-India scale. The essence of any such planning is co-ordination of regional schemes which would aim not only at raising the income and the standard of living in the areas concerned but would also minister to the furtherance of the all-India plan. The economic problems of Gujarat we have set out in this work have to be viewed in this perspective.

APPENDIX

[TABLES, STATEMENTS, & ANALYSIS REPORTS]

TABLE No. 1

Table giving the Rainfall figures as recorded in the different parts of Gujarat,
for the years 1927-28 to 1937-38

Station where Recorded	1927- 1928	1928- 1929	1929- 1930	1930- 1931	1931- 1932	1932- 1933	1933- 1934	1934- 1935	1935- 1936	1936- 1937	1937- 1938
*Palanpur	..	28.38	23.7	33.38	24.36	55.72	38.66	22.39	12.72	52.66	23.59
*Radhanpur	26.44	12.33	17.44	21.66	21.51	20.80	18.02	10.37	6.84	..	..
*Baroda	73.23	38.52	27.86	40.59	51.68	38.81	48.82	37.11	34.9	27.35	44.29
*Kadi	51.88	22.80	..	..	..	..	..	..	..	..	..
*Mehsana	..	..	18.13	23.22	28.89	25.98	37.48	30.10	16.78	14.45	38.94
*Mansa	49.23	28.67	22.2	27.90	47.65	25.38	..	..	..	..	..
*Ilol	40.44	25.30	17.43	24.48	42.7	..	..	..	..	..	..
*Balasinor	62.41	38.36	31.36	42.7	43.97	32.83	46.70	53.34	26.34	16.71	..
*Lunawada	47.36	36.37	20.72	35.43	41.6	26.47	34.7	37.68	12.25	38.2	25.94
*Rampur (Santrampur)	..	..	31.98	41.67	58.50	27.11	48.59	34.90	23.55	16.85	36.15
†Ahmedabad	..	35.74	23.64	32.46	39.01	42.76	47.93	29.04	22.72	22.19	40.68
†Kaira	..	27.12	22.91	37.17	31.74	31.36	39.40	37.27	21.33	20.80	34.36
†Godhra	..	50.96	41.34	57.73	59.31	39.55	52.48	49.77	38.41	24.49	49.18
†Broach	..	35.03	35.26	33.20	34.78	28.15	25.50	31.15	20.71	25.11	28.40
†Jambughoda	..	..	..	..	..	40.94	52.15	..	..	..	..
*Raipipla	59.45	30.43	30.07	38.08	46.43	37.41	32.65	32.75	..	..	..
†Surat	..	30.44	55.42	44.05	53.24	44.90	50.90	51.09	40.99	27.81	64.93
*Navsari	45.70†	40.84†	49.23	54.16	69.92	62.32	54.33	52.21	47.53	42.62	63.30
*Bansda	..	..	..	..	..	..	75.25	66.71	57.77	..	..

* Figures taken from the Administration Reports of the States concerned.

† Figures

of the Bombay Province for the years concerned.

Statement No. 1

Statement giving the Forest Areas (in acres) of Gujarat.

(It will be realised from the following statements that even when statistical information about the forest resources from the various States covering nearly 74 per cent of the area of Gujarat is collected, it could not be presented more precisely. That is because no attempt has yet been made to preserve the statistics on a scientific basis, and whatever statistics were maintained by the Gujarat States, they were mostly from the point of view of revenue collection.)

Year	District or State	Area in Acres	Forest Revenue in Rupees
	British Districts of Gujarat :—		
*1936-37	Ahmedabad	9,115	Bom. Econ. & Indus. Survey Com. Report gives the Revenue of Panch Mahals Division for 1937-38 at Rs. 2,19,983
*1936-37	Broach and Panch Mahals	2,05,778	
*1936-37	Surat	46,206	
	Gujarat States :—		
*1936-37	Baroda (Amreli and Okhamandal excluded)	3,30,156	
1934-35	Rajpipla (excluding forests in feudatory estates)	4,16,000	2,12,476
*1936-37	Dharampur	91,357	
1935-36	Bansda (Reserved forests only)	55,842	1,43,033
1940	Radhanpur (area covered with 'babuls')	19,141	
Forests within the above States covering 20,593 square miles area of Gujarat.		11,73,595	

* The definition of the term 'forests' for these areas is "any land classed or administered as forest under legal enactment dealing with forests".

The following States covering 2,883 square miles area of Gujarat only supply the figures of the forest revenues realised by them:—

Year	State	Forest Revenue (in Rupees)	} Our estimate of Forest Area of these States (Total in Acres) 2,00,000
1937-38	Palanpur	11,947	
1936-37	Balasinor	16,343	
1938	Lunawada	93,548	
1937-38	Sant State	27,395	
1933-34	Jambughoda (Narukot)	27,021	
Total Forest Revenue of these States covering 2,883 square miles area of Gujarat		1,76,254	

For the above States, forest areas in acres are not available. In their Administration Reports they simply mention the 'Forest Revenue' realised by them. In order to arrive at the conservative estimate about the forest acreage within these States, we take into consideration the Panch Mahals, Rajpipla and Bansda figures. From the income and acreage figures we find that Bansda State realised double the income in rupees to its forest acreage, while Panch Mahals practically one rupee, and Rajpipla half a rupee per acre. From this point of view, the above States must be covering something like 2,00,000 acres of forests within their territories.

Still we have to make the estimate of the remaining areas. Even though information about the existing conditions of the Idar's forest have been studied carefully, the above tables do not include the forest acreage of that State. In addition, the resources of the Chhota Udepur, Devgad Bariya and the rest of the Rewa Kantha have to be taken into account. They are likely to increase of the forest areas of Gujarat by 2 lakh acres.*

* The Dangs Forests are on the border line of Gujarat and practically their entire area (995 square miles, i.e. 6,37,440 acres) is covered with forests. When, therefore, the boundaries of Gujarat are extended on the linguistic basis, Gujarat is likely to add a great deal to its forest wealth from this area.

FOREST ACREAGE IN GUJARAT

State or district	Area in Acres	State or district	Area in Acres
British Gujarat	2,61,099	Palanpur, Bala-	
Baroda	3,30,156	sinor, Lunawada,	
Rajpipla	4,16,000	Sant, Jambughoda	2,00,000
Dharampur	91,357	Idar, Chhota Udepur	
Bansda	55,842	Devagad Bariya, the	
Radhanpur	19,141	rest of Reva Kantha	
		Agency and a portion	
		of the Dangs Forests	2,00,000
		Total..	15,73,595

Analysis Reports of some on the Mineral Finds of the Idar and Rajpipala States.

SABARVALLEY KAOLIN INDUSTRIES

Refiners and Manufacturers of China Clay for
Textile and Paper Industries

Factory	Proprs.
ARSODIA	Somnath B. Bhatt & Co.
Idar State, P. O. Davad,	Ahmedabad.
Jadar, A. P. Rly.	

HUGHES AND DAVIES

Mining Engineers, Metallurgists, Assayers,
Analytical Chemists, and Cement Testers, etc.

No. D. 3267
101, Esplanade Road,
Fort, Bombay.
21-3-40.

(Copy)

CERTIFICATE

We hereby certify that a sample of China Clay (lavigated) received by us on 19-3-40 from M/s. Somnath B. Bhatt & Co. has been analysed with the following results.

Marked:- "Everest Brand"

China Clay - Sample received from

M/s Sabarvalley Kaolin Industries, Arsodia, Idar State.

		Per Cent		Per Cent.
Silice	SiO ₂	45.72	Magnesia	MgO 0.50
Alumina	Al ₂ O ₃	40.32	Chlorine	Cl ₂ Trace
Ferric Oxide	Fe ₂ O ₃	0.35	Moisture	H ₂ O 0.64
Lime	CaO	Trace	Combined Water	12.47
				<u>100.00</u>

Fineness 97.7% passes through 200 I.M.M. Std. Sieve.
 Grit Nil. Feel Good. Colour Good.
 This is an average good quality China Clay.

Sd/-J. F. DAVIES

* * *

HUGHES AND DAVIES

Mining Engineers, Metallurgists, Assayers,
 Analytical Chemists and Cement Testers, etc.

No. D. 2185

101, Esplanade Road,
 Fort, Bombay.
 13-3-39.

CERTIFICATE

We hereby certify that a sample of China Clay received by us on 3-3-39 from the Aklera China Clay Works, has been analysed with the following results :-

Marked 1st quality China Clay-"Aklera Brand"

Silica	SiO ₂	45.34%	Lime	CaO	Trace
Alumina	Al ₂ O ₃	39.38%	Magnesia	MgO	Trace
Ferric Oxide	Fe ₂ O ₃	0.34%	Moisture	H ₂ O	1.22%
Titanium			Combined		
Oxide	TiO ₂	1.70%	Water		11.90%
			Alkalies, etc.		<u>0.12%</u>
					100.00

This is a good quality China Clay.

Sd/-J. F. DAVIES

Analysis Report on Aklera, Idar State, China Clay by Mr. N. P. Gandhi, Head of the Department of Mining and Metallurgy, Benares Hindu University.

Salica	SiO ₂	45.16	Magnesia	MgO	0.13
Iron Oxide	Fe ₂ O ₃	0.70	Alkalies	Na ₂ O & K ₂ O	0.72
Alumina	Al ₂ O ₃	39.75	Loss on ignition,	H ₂ O, CO ₂	12.90
Lime	CaO	0.94	etc.		
					<u>100.00</u>

From the above you will please see that it comes very close to that of British China Clay.

*Analysis report on Idar Granite, Idar State, by Dr. Christie
of the Geological Survey Laboratory.*
(Hornblende Variety)

Kawa

SiO ₂	66.04	TiO ₂	.69
Al ₂ O ₃	14.77	ZrO ₂	.03
Fe ₂ O ₃	1.18	CO ₂	..
FeO	4.41	P ₂ O ₅	Trace
MgO	0.98	Cl	Trace
CaO	2.95	SO ₃	Trace
Na ₂ O	2.56	Cr ₂ O ₃	..
K ₂ O	5.25	MnO	.11
H ₂ O (below 108°C)	.21	BaO	.02
H ₂ O (above 108°C)	.71	SrO	Trace
			<hr/> 99.91
		Specific Gravity	2.72

* * *

Analysis report on Talc (French Chalk) of Nairanpur, Idar State, by M/S Hughes and Davies, Bombay.

Salica	SiO ₂	59.46	Magnesia	MgO	32.23
Alumina	Al ₂ O ₃	1.20	Free Combined		
			Water	H ₂ O	6.15
Ferric Oxide	Fe ₂ O ₃	0.38	Alkalies, etc.		0.13
Lime	CaO	0.45			
					<hr/> 100.00

This quality French Chalk would be suitable for textile and general industrial purposes.

* * *

*Analysis report on Asbestos of Idar State by Mr. H. S. Bion,
of the Geological Survey of India.*

Ign	H ₂ O	...	1.52	CaO	...	12.15
SiO ₂		...	55.54	MgO	...	21.27
Fe ₂ O ₃	}	...	8.35	Loss	...	1.17
Al ₂ O ₃						
						<hr/> 100.00

The Iron and Alumina have not been separated and a little Manganese is present.

Analysis report on Manganese ore found in Idar State, by M/S Hughes and Davies, Analytical Chemists and Cement Testors, 101, Esplanade Road, Fort, Bombay.

Manganese 52.48%

* * *

Analysis Reports on the Rajpipla Clays as tested by Mr. B. Oates, I. M. E.

(1) BHILOD	Volatile Matter	..	..	..	13.80%
	Silica	..	..	..	45.20%
	Aluminium Oxide (Al_2O_3)	..	..	..	27.80%
	Iron Oxide (Fe_2O_3)	..	..	..	14.16%
					<u>100.96</u>
(2) DAMLAI	Volatile Matter	..	..	..	14.11%
	Silica	..	..	..	48.28%
	Aluminium Oxide	..	..	..	29.88%
	Iron Oxide	..	..	..	6.34%
					<u>98.61</u>
(3) VASNA	Volatile Matter	..	..	..	19.31%
	Silica	..	..	..	44.00%
	Aluminium Oxide	..	..	..	20.08%
	Iron Oxide	..	..	..	12.48%
	Magnesia	..	..	..	Trace
					<u>95.87</u>

Of the above analysis Damlai is the better clay owing to the smaller percentage of iron. Effort must be directed to find a deposit low in iron since iron is disastrous to pottery manufacture. The above clays are suitable for tile production. Tajmahal,
17-4-29.

Sd/- B. Oates, I.M.E.

TABLE No. 2 (a)
Table giving the Acreage of Land under the cultivation of the Main Crops
in the various States of Gujarat.

State or District	Bajro-Millet	Juwar	Wheat	Rice	Cotton	Oil-Seeds	Tobacco	Grams and Pulses
British Gujarat*	333,443	719,473	219,503	212,519	1,258,967	300,296	74,520	468,473
Baroda* (excluding Amreli and Okhamandal)	419,647	586,071	61,618	176,137	845,340	189,166	48,332	359,759
Palanpur† 1937-38	..	..	..	..	2,962	5,429	..	525†
Radhanpur† 1935-36	..	55,301	28,418	..	40,227	1,555	..	..
Cambay† 1937-38	..	22,657	58,886	4,690	16,163	..	2,804	..
Lunawada*	..	..	..	..	3,695	..	..	..
Rajpipla†	7,334	39,304	957	28,908**	129,115	4,380	4,088	21,645
Dharampur*	..	..	..	22,420	1,910	610	..	112,661
Sachin*	.. 27	5,340	..	1,063	6,554	593	11	695
Total	782,125	1,422,146	369,382	445,737	2,304,933	502,029	129,755	963,758

GRAND TOTAL 6,919,865 ACRES.

* Figures taken from Agricultural Statistics of India 1936-37, Volumes I and II.

† Figures taken from the Administration Reports of the States concerned.

‡ Grams only.

** 1027 A. L. F. Cotton—There is compulsory sowing of 1027 A. L. F. variety in Rajpipla.

Table No. 2 (b)
Table showing the Area (in acres) under Oilseeds cultivation in the various States of Gujarat.

Year	District or State	Lin- seed	Sesamum (till)	Rape and Mustard	Ground nut	Cocoa- nut	Castor	Others	Total
*1936-37	British Gujarat...	135	67,860	15,131	184,864	13	30,634	1,659	300,296
*1936-37	Gujarat States :-								
	Baroda (Amreli and Okhamandal excluded)	...	25,932	21,029	32,042	..	106,124 610	4,039	189,166 610
*1936-37	Dharampur	...	...	...	...	..	8	...	593
*1936-37	Sachin	...	...	...	585	..	...	...	5,429
†1935-36	Radhanpur	...	...	...	...	..	...	1,555	1,555
†1937-38	Cambay	...	...	...	...	..	1,636	...	4,380
†1934-35	Rajpipla	...	2,744	...	...	..	...	...	...
Total	...	135	96,536	36,160	217,491	13	139,012	12,682	502,029

GRAND TOTAL 502,029 ACRES

N. B. This Table gives the statistics of about 63 per cent area of Gujarat
 *Figures taken from the Agricultural Statistics of India 1936-37 Volumes I and II.

†Figures taken from the Administration Reports of the States concerned.

Table No. 2 (c)

Table showing the Acreage under the cultivation of Minor Crops in the various States of Gujarat.

State or District	Ragi or Marna	Barley	Condi-ments and spices	Sugar Cane	Fruits & Vegetables including root crops	Miscellaneous
*British Gujarat	36,635	6,262	7,456	5,899	26,197	..
*Baroda (exclucing Amreli and Okhamandal)	19,765	2,722	15,746	1,635	13,263	..
\$Radhanpur 1935-36	..	..	..	..	..	32,202
\$Cambay 1937-38	..	..	..	..	..	3,880
\$Rajpipla 1934-35	..	..	..	..	1,858	46,818
*Dharampur	..	..	..	126	..	..
*Sachin	..	..	..	25	..	..
Total	56,400	8,984	23,202	7,685	42,844	82,900

GRAND TOTAL 2,22,015 ACRES.

N. B. This Table gives the figures for about 63 per cent area of Gujarat.

A Note on the Remaining Crops cultivated in the various States of Gujarat.

Table No. 2 (a) clearly shows that the principal commerical crops of Gujarat are cotton, and oil seeds (grown in more than half a million acres). Next in importance are the food crops and pluses mostly required for local consumption, which cover something like 7 million acres of land. Among the remaining crops sown in these areas are : (1) fodder crops and (2) maize crop. Fodder crops are cultivated in about one million acres, and maize crop in 1,32,062 acres. They are cultivated in the various States as follows :

* Figures taken from the Agricultural Statistics of India 1936-37 Volumes I and II

\$ Figures taken from the Administration Reports of the States concerned.

(1) Area under cultivation of Fodder Crops

British Gujarat	.. .. .	736,818	acres
Baroda (excluding Amreli and Okhamandal)		83,106	do
Sachin	.. .. .	6,743	do
Total		826,667	acres

(2) Area under cultivation of Maize Crop

British Gujarat	.. .. .	1,31,188*	acres
Baroda (excluding Amreli and Okhamandal)		274	do
Total		1,32,062	acres

As regards maize crop, the figures for the States like Lunawada, Sant, Balasinor, Mansa, etc., are not available to us. But looking to the importance of maize crop in those areas, we can confidently predict that about 3 lakh acres of land are under maize cultivation in Gujarat.

Other minor crops about which figures are available to us are ragi or 'marna', barley, condiments and spices, sugar-cane, fruits and vegetables including root crops and miscellaneous products. Thus Table No. 2(c) gives the acreage under the cultivation of minor crops in the various States of Gujarat. About $\frac{1}{4}$ million acres of land are occupied by these miscellaneous crops in this Table. But miscellaneous crops cover a wide field as they include, 'banti', 'bavto', 'kodra', 'morio', 'nagli', 'kalthi', etc. If, therefore, the remaining States like Sant, Lunawada, Chhota-Udepur, Devgad Bariya, etc. were taken into account, they would give us half a million acres under the cultivation of these crops in Gujarat,

Figures given in Table Nos. 2 (a) and 2(c) cover about 63 per cent of the whole territory of Gujarat. They give us an exact idea about the 9 million acres of land cultivated under different crops in these areas. The Administration Reports of the other States like Sant, Ilol, Mansa, Bansda, Balasinor, etc., make it clear that within their areas mainly food crops are grown and most of these crops are meant for home consumption. We can thus infer that on the remaining 5 million acres land which has more or less similar characteristics, food crops, fodder, oilseeds and tobacco are mostly raised. We have obtained precise statistics of about 9 million acres; and the

* Out of 1,31,188 acres 1,23,830 acres go to the credit of Broach and Panch Mahals.

clue given to us by the Administration Reports of some of the remaining States like Mansa, Ilol, Sant, Lunawada, etc., and also by the statements recorded from the Revenue Officers of some of the States by personal approach, leads us to form the following estimate of the total acreage of land under cultivation of different crops in Gujarat.

Crops	Data obtain- ed acres	Our estimate of acres in the remaining States areas	Total acres
Under Food Crops (pulses included)	3,700,000	1,500,000	6,000,000
Under Rice	500,000	300,000	
Under Fodder	1,000,000	1,250,000	2,250,000
Under Minor Crops specified in Table No. 2 (c)	250,000	250,000	500,000
Under Cotton	2,300,000	700,000	3,000,000
Under Oilseeds	500,000	500,000	1,000,000
Under Maize	130,000	130,000	260,000
Under Tobbaco	130,000	130,000	260,000
Total	8,276,000	4,52,6,000	13,270,000

Table No. 3.
Live Stock Resources of Gujarat.

Year	District or State	Bulls & Bullocks	Cows	Calves Young stock	Male Buffaloes	Cow Buffaloes	Buffalo Calves young stk.	Sheep	Goats	Horses and Ponies	Mules	Donkeys	Camels
1934-35	British Gujarat	571,170	290,230	322,673	8,164	385,668	352,111	118,875	341,230	18,582	93	23,057	2,372
1936-37	Baroda (Gujarat)	394,360	178,628	104,688	10,847	331,224	181,531	99,344	199,309	10,622	206	24,238	5,238
1936-37	Dharampur	30,476	26,072	†	2,984	4,086	†	18	426	54	†	†	†
1936-37	Sachin	3,226	1,378	121	65	2,619	199	1,024	3,301	75	†	†	†
1936-37	Palanpur	68,614	60,366	53,102	1,828	48,779	28,760	23,872	73,154	3,101	†	6,591	4,159
1934-35	Idar	51,742	63,532	29,175	..	30,281	12,356	43	152	*1,424	†	2,801	424
1934-35	Vijayanagar	3,844	6,191	3,868	72	2,218	1,125	Information not available	..	..	..	..	..
1935-36	Radhanpur	15,630	36,135	†	165	8,630	†	21	348	1,201	†	1,596	†
1937-38	Cambay	15,480	10,309	†	1,322	19,972	†	6	220	515	†	674	†
1932-33	Mansa	1,878	261	†	47	2,083	†	2	260	47	†	561	†
1931-32	Itol	1,409	913	†	58	925	†	†	939	81	†	34	†
1936-37	Balasinar	14,265	9,119	†	3,085	7,187	†	6	968	772	†	951	†
1937-38	Sant State	30,399	16,888	†	1,357	13,064	†	12	805	630	†	642	†
1934-35	Rajpipla	44,300	26,329	25,964	197	14,060	8,963	28	108	1,751	†	398	†
1935-36	Bansda	17,330	13,150	†	1,607	3,344	†	7	115	120	†	†	†
1933-34	Jambughoda	3,081	1,595	†	226	671	†	1	900	179	†	12	†
1937-36	Lunawada Separate	Figures not given but the total strength is given as	97,539	..	..	..	..	..	..	..	..	..	..
GRAND TOTAL		1,266,904	741,096	539,591	32,744	874,811	585,045	243,259	622,235	39,154	299	61,555	12,189

N.B. — This Table represents the conditions of about 76.5 per cent area of Gujarat. This Table has been computed from the Agricultural Statistics of India Volumes I and II 1936-37 and the Administration Reports of the States concerned.
* Mares' Statistics not included.
† Information not available.

Table No. (i)

Table giving the value of the Import and Export Trade carried on by the Minor Ports of Gujarat during the years 1932-33 to 1936-37.

P O R T S	Year 1932-33 Value in 000's Rs.		Year 1933-34 Value in 000's Rs.		Year 1934-35 Value in 000's Rs.		Year 1935-36 Value in 000's Rs.		Year 1936-37 Value in 000's Rs.	
	Import	Export	Import	Export	Import	Export	Import	Export	Import	Export
Cambay	..	19,62	18,18	10,95	15,57	9,86	3,77	3,35	9,20	7,80
Broach	..	56,25	115,33	41,32	73,35	48,51	20,98	49,42	32,18	39,06
Surat	..	22,71	8,92	27,50	93,93	40,38	11,69	41,41	12,22	29,73
Bulsar	..	9,02	8,45	8,24	7,75	9,96	7,34	10,09	8,63	11,71
Total	..	87,60	150,88	88,01	190,60	108,71	43,78	104,27	62,23	88,30
										76,99

N. B. This Table has been computed from the figures obtained from the Bombay Minor Ports Committee Report 1939 and the Cambay State Administration Reports for the years 1932-33 to 1936-37.

Table No. (ii)

Table giving the Sea-borne Trade of the Minor Ports of Gujarat during the years 1932-33 to 1936-37.

PORTS	Year 1932-33	Year 1933-34	Year 1934-35	Year 1935-36	Year 1936-37
	Value in 000's Rs.	Value in 000's Rs.	Value in 000's Rs.	Value in 000's Rs.	Value in 000's Rs.
Cambay...	37,80	26,52	13,63	12,55	17,33
Baroch ...	151,58	114,67	69,49	81,60	87,77
Surat ...	31,63	121,43	52,07	53,63	40,52
Bulsar ...	17,47	15,99	17,30	18,72	19,67
TOTAL...	238,48	278,61	152,49	166,50	165,29

N. B. This Table has been computed from figures obtained from the Bombay Minor Ports Committee Report 1939 and the Cambay State Administration Reports for 1932-33 to 1936-37.

Table No. (iii)

Table giving figures of the Sea-borne Trade of Cambay carried on with the Ports of Madras and Bombay during the quinquennium 1802-1806.

Year	Imports from Madras and Bombay Value in Sicca Rupees	Exports to Madras and Bombay Value in Sicca Rupees	Total Sea-borne trade with Madras and Bombay Value in Sicca Rupees
1802	60,78,377	73,53,135	134,31,512
1803	36,63,894	56,25,184	92,89,078
1804	68,18,485	67,78,323	135,96,808
1805	75,72,819	79,22,128	154,94,947
1806	84,93,828	84,26,310	169,20,138
TOTAL..	326,27,403	361,05,080	687,32,483

N. B: Figures taken from Oriental Commerce Volume the First by William Milburn, Esq., of the Honourable East India Company's Service, 1813.

Table No. (iv)*

Table giving the Sea-borne Trade of Surat and adjacent Villages with Fort St. George and Bombay for the quinquennium 1802-1806.

Year	Total Imports from Fort St. George and Bombay Value in Sicca Rupees	Total Exports to Fort St. George and Bombay Value in Sicca Rupees	Total Sea-Borne trade of Surat & adjacent villages with Fort St. George and Bombay Value in Sicca Rupees.
1802	23,51,370	14,40,830	37,92,200
1803	17,56,407	9,74,122	27,30,529
1804	33,66,540	13,51,368	47,17,908
1805	34,46,686	24,31,123	58,77,809
1806	31,67,740	34,54,172	66,21,912
Total	140,88,743	86,51,615	227,40,358

Table No. (v)*

Table giving the exports from Surat to the Gulfs of Persia and Arabia for four years 1794-95 to 1797-98.

Years	Arabian Gulf	Persian Gulf	Total
	Rupees qr. reas	Rupees qr. reas	Rupees qr. reas
1794-95	3,34,734-0-80	2,09,601-1-40	5,44,335-2-20
1795-96	2,82,970-2-70	3,14,386-3-80	5,97,357-2-50
1796-97	5,22,527-0-45	3,52,119-1-00	8,74,646-1-45
1797-98	3,45,657-0-86	2,45,381-2-80	5,91,308-2-66

* N.B. Figures taken from the Oriental Commerce Volume First by William Milburn, Esq., of the Honourable East India Company's Service, 1813.

Table No. 4

Table giving the Road Mileage of British Gujarat, Baroda and some of the Gujarat States.

Total area of the State Sq. miles.	State or District	Total Road Mileage.	Motorable in fair Weather.
10,193	British Gujarat†	1,561	*619
6,812	Baroda (Total area)††	1,791	*652
189	Balasinor	223	60
215	Bansda	98	†61½
813	Bariya	182	91
350	Cambay	59	†4½
873	Chhota Udepur	173	†136
704	Dharampur	185	140
1,668	Idar	370	334
143	Jambughoda	60	..
1,150	Radhanpur	45	41
1,518	Rajpipla	1,485	400
24,628	Total	6,232	2,539

Total above area 24,628 sq. miles
Gujarat's area 33,798 sq. miles

Statistics representing the

conditions prevalent in 74 per cent area of Gujarat.

N. B. This Table has been computed from the Bulletin issued by the Indian Roads and Transport Development Association Ltd. in 1938.

* Of these roads 12 miles in British Gujarat and 14 miles in Baroda are asphalt roads.

† Of these roads 24 miles in British Gujarat, 1½ miles in Bansda, 1 mile in Cambay, 3 miles in Chhota Udepur are Macadam surfaced roads.

†† According to the Statistical Abstract of the Baroda State 1941 Baroda (Gujarat area) has 1,521 miles total road mileage (Metalled roads 305 miles plus unmetalled roads 1,216 miles).

Table No. 5

Table giving the Riding and Load Carrying Carts in British Gujarat, Baroda, and some of the remaining Gujarat States.

Year	State or District	Carts
1934-35	Ahmedabad District ..	26,240
do	Kaira District ..	31,509
do	Broach and Panch Mahals ..	35,623
do	Surat District ..	46,565
	A. TOTAL BRITISH GUJARAT	1,39,937
1936-37	Baroda ..	32,807
do	Mehsana ..	33,005
do	Navsari ..	24,108
	B. TOTAL BARODA (AMRELI AND OKHAMANDAL EXCLUDED)	89,920
1936-37	Dharampur ..	2,318
1936-37	Sachin ..	1,279
1934-35	Palanpur ..	8,708
1934-35	Idar ..	3,102
1935-36	Radhanpur ..	2,990
1934-35	Vijayanagar figures not available ..	..
1937-38	Cambay ..	4,066
1932-33	Mansa ..	275
1930-31	Ilol ..	309
1936-37	Balasinor ..	1,283
1937-38	Sant ..	1,695
1934-35	Rajpipla ..	10,029
1935-36	Bansda ..	1,947
1933-34	Jambughoda ..	295
1937-38	Lunawada Information not available ..	..
	C. TOTAL SOME OF THE GUJARAT STATES ..	38,296
	A. British Gujarat ..	1,39,937
	B. Baroda (Gujarat area) ..	89,920
	C. some of the States ..	38,296
		2,68,153
	Our estimate for the whole of Gujarat	4,00,000

N.B. This Table represents the conditions prevailing in about 76.5 per cent area of Gujarat and it has been computed from the Agricultural Statistics of India Volumes I and II, 1936-37 and the Administration Reports of the States concerned.

Table No. 6

Table giving the details of Railways in Gujarat : their Mileage and Gauge.

Railway		Gauge	Length in miles
A. B. B. & C. I. Railways—			
Bulsar to Viramgam	..	5-6	225.67
Ahmedabad-Dholka-Dhandhuka	..	3-3 3/8	72.15
Viramgam-Wadhwan	..	3-3 3/8	39.05
Ahmedabad-Palanpur	..	3-3 3/8	82.36
Kharaghoda-Viramgam	..	5-6	22.12
Anand-Godhra	..	5-6	48.95
Baroda-Godhra	..	5-6	42.37
Godhra-Dahod	..	5-6	45.41
Vasad-Kathana*	..	5-6	26.61
Boriavi-Vadtal	..	5-6	3.71
Tapti-Valley†	..	5-6	115.72
			764.12
B. Gaekwad's Baroda State Railways—			
(1) Gaekwad's Mehsana Railway :			
(a) Viramgam-Mehsana—Taranga Hill	}	3-3 3/8	256.01
(b) Mehsana-Kakosi-Metrana			
(c) Manand Road-Harij			
(d) Chansma-Becharaji-Bhoyani Rd.			
(e) Vijapur Kadi and Ambaliyasana			
(2) Small branches in Gaekwad's territory.			
	..	2-6	355.73
(3) Gaekwad's Petlad Railway.			
	..	5-6	21.42
(4) Broach-Jambusar			
Jambusar-Kavi	} ‡	2-6	72.28
Samni-Dahej			
			705.44

* Dismantled since 1940.

† Purchased by B. B. & C. I. Railway on 1-1-42.

‡ Purchased by the Baroda State on 1-10-42.

Table No. 6 (contd.)

Table giving the details of Railways in Gujarat : their Mileage and Gauge.

	Railway		Gauge	Length in miles
C. Other State Railways:				
	Palanpur-Deesa .. .. .	.. .. .	3-3 3/8	17.11
	Rajpipla State Railway .. .. .	.. .. .	2-6	39.24
	Tarapur-Cambay Railway .. .. .	.. .. .	5-6	12.36
	Piplod-Devgad Bariya. .. .. .	.. .. .	2-6	9.52
				<hr/> 78.23
D. Owned by Public Agenices:				
(1) Gujarat Railways:				
	(a) Nadiad-Kapadvanj .. .. .	.. .. .	2-6	28.18
	(b) Godhra-Lunawada .. .. .	.. .. .	2-6	25.49
	(c) Champaner-Shivrajpur-Pani Mines.		2-6	30.68
(2) Ahmedabad-Prantij Railway:				
	Ahmedabad-Himatnagar	}	3-3 3/8	88.73
	Himatnagar-Brahmkheda			
				<hr/> 173.08
				Mileage.
A.	B. B. & C.I. Railways .. .. .	.. .. .		764.12
B.	Baroda State Railways .. .. .	.. .. .		705.44
C.	Railways owned by the other Gujarat States.			78.23
D.	Railways owned by the Public Companies. ..			173.08
				<hr/> 1,720.87

Table No. 7

Table giving some idea about the existing Rail-Road Competition in British Gujarat.

From Station to Station	Distance Miles	Motor Buses Total
A. BUSES DIRECTLY		
COMPETING :		
Ahmedabad to Sabarmati	5	3
Ahmedabad to Sanand	14	6
Ahmedabad to Naroda	5½	14
Sarkhej to Elis Bridge	7	15
Bavla to Elis Bridge	21	4
Dholka to Elis Bridge	29	2
Anand to Nadiad	13	22
Vasad to Borsad	13	5
Nadiad to Kapadvanj	28	13
Dakor to Umreth	5	7
Dakor to Shevaliya	13	1
Godhra to Kharsaliya	17	4
Godhra to Derol	15	
Godhra to Halol	24	1
Godhra to Shivrajpur	33	2
Broach to Jambusar	29½	2
B. BUSES INDIRECTLY		
COMPETING :		
Viramgam to Mandal	16	4
Anand to Borsad	22	14
Mehmedabad to Mahudha	12	5
Dakor to Kapadvanj	58	8
Total A Buses directly competing	..	262
B Buses indirectly competing	..	108
		<hr/> 370 miles

N. B. This Table is prepared from the findings of the Road and Rail-way Competition Committee in Governors' Provinces 1933.

N. B. TOTAL POPULATION OF GUJARAT

- (i) According to our Tables Nos. 13, 16, 21 ... is 77,11 450
 (ii) According to our Tables Nos. 10, 17 is 76,35,715

The above discrepancy is due to the inconsistency of the same being maintained in the Census Report for 1931.

"For, Imperial Table I (giving Area, Houses and Population),
 Imperial Table II (giving variation in population since 1881),
 Imperial Table III (giving Cities, Towns and Villages Classified
 by Population),

and Imperial Table IV (giving Cities and Towns Classified by
 Population with variations since 1881),
 Population of Ahmedabad Municipal Area (which means of Ahmedabad
 City) has been estimated at 3,10,000, whereas in the remaining Tables
 the figure shown is the one obtained by enumeration on the night of
 the Final Count."

Vide Census of India 1931, Bombay Presidency Census Report
 Vol. VIII, Part II, Page 1.

Moreover, refer to all other Imperial Tables from the Bombay
 Presidency Census Report 1931, some note, giving the explanation of
 discrepancy in totals, is added either in the beginning or at the
 end of each table.

(iii) Tables Nos. 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23,
 24, 25, 26, 33 & 34 have been computed from the Census of Population
 Reports of the Western India States Agency, the Baroda State and the
 Bombay Presidency, for 1931.

Table No. 8

Table showing the Area, Density of Population, Number of Towns and Villages.

States and Agencies	Area in Sq. Miles	Density per Sq. Mile	Towns	Villages
A. Western India States Agency :				
Palanpur State	1,769	148.7	2	547
Radhanpur State	1,150	61.3	1	164
Banas Kantha Agency :				
Tharad State	1,261	43.0	..	164
Wao State	537	38.5	..	60
Malek Shri Jorawar Khan's State (Varahi)	120	25.0	..	15
Rest of the Banas Kantha Agency	1,557	80.6	..	320
Total A	6,394	84.1	3	1,270
B. Baroda State :				
Baroda City	11	10260.	2	..
Baroda Division	1,922	370.1	17	823
Mehsana Division	3,068	329.2	16	1,037
Navsari Division	1,811	223.2	9	776
Total B	6,812	328.6	44	2,636
C. Bombay Presidency :				
Ahmedabad District	3,846	259.9	12	869
Broach District	1,468	227.6	5	403
Kaira District	1,620	457.0	10	570
Panch Mahals	1,608	282.6	5	648
Surat District	1,651	420.1	5	780
Total C	10,193	316.2	37	3,270
D. Bombay States and Agencies :				
Cambay State	350	250.7	2	102
Mahikantha Agency :				
Idar State	1,668	157.4	3	1,067
Rest of the Mahikantha Agency	1,456	175.4	4	792
Revakantha Agency :				
Rajpipla State	1,518	135.7	2	712
Chhota-Udepur State	873	165.6	1	530
Devgad Bariya State	813	196.0	1	414
Lunawada State	388	245.2	1	339
Balasinor State	189	277.9	1	102
Sant State	394	212.0	1	277
Sankheda-Mewas State	323	183.0	..	312
Rest of the Revakantha States Agency	470	186.2	..	299
Bansda State	215	227.1	1	86
Dharampur State	704	159.1	1	265
Sachin State	42	526.3	1	20
Dangs	996	33.8	..	298
Total D	10,399	164.5	19	5,615
Grand Total	33,798	228.1	103	12,791

Table No. 9
Table showing Population Figures of last Six Censuses.

State	1881	1891	1901	1911	1921	1931
A. Western India States Agency:-						
Palanpur	2,34,402	2,74,864	2,22,627	2,26,250	2,36,694	2,64,179
Kadhanpur	..	98,017	61,548	65,567	67,789	70,530
Banas Kantha Agency	..	3,70,662	2,44,644	2,04,979	2,06,872	2,03,553
B. Baroda State:- (Amreli Division and Okhamandal excluded)	..	20,37,537	22,35,208	17,79,256	18,54,529	19,48,462
C. Bombay Presidency:-						
British Districts in Gujarat						
Ahmedabad	8,56,119	9,21,507	7,95,967	8,27,809	8,90,911	9,99,768
Broach	3,26,930	3,41,490	2,91,763	3,06,717	3,07,745	3,34,170
Kaira	8,05,005	8,71,794	7,16,332	6,91,744	7,10,982	7,41,650
Panch Mahals	2,55,479	3,13,417	2,61,020	3,22,695	3,74,860	4,54,526
Surat	6,14,198	6,49,989	6,37,017	6,54,109	6,74,351	6,93,613
D. Bombay States and Agencies:-						
Cambay	86,074	89,722	75,225	72,656	71,762	87,761
Mahikantha Agency	5,17,485	5,81,568	3,61,545	4,12,631	4,50,478	5,18,164
Revakantha Agency	5,49,892	7,33,506	4,79,065	6,65,099	7,53,058	8,88,086
Bansda	34,122	41,373	40,382	44,594	40,125	48,839
Dharampur	1,01,289	1,20,498	1,00,430	1,14,995	95,171	1,12,031
Sachin	15,721	19,353	20,492	18,903	19,977	22,107
Dangs	25,558	32,747	18,582	29,345	24,481	33,748

Table No. 10

Table showing Distribution of Population by Age Groups in Gujarat.

Age	Persons	Males	Females
0—5	11,36,784	5,65,827	5,70,957
5—10	10,16,981	5,34,915	4,82,066
10—15	9,34,576	5,00,313	4,34,263
15—20	7,26,162	3,77,075	3,49,087
20—30	13,05,391	6,72,586	6,32,805
30—40	10,28,979	5,37,118	4,91,861
40—50	7,63,983	4,01,877	3,62,106
50—60	4,41,882	2,33,422	2,08,460
60 & over	2,80,977	1,42,297	1,38,680
Total	76,35,715	39,65,430	36,70,285

Table No. 11

Table giving comparative idea of age composition of the population of Gujarat and Kathiawar in 1931.

Age Period	Gujarat 1931		Kathiawar 1931	
	Males	Females	Males	Females
All Ages	519	481	509	491
0—5	74	75	78	80
5—10	71	63	72	67
10—20	115	103	117	107
20—40	158	147	144	143
40—60	83	75	77	72
60 and over	18	18	21	22

Table No. 12

Table giving the distribution of population per mille into the various age groups in Gujarat and the Bombay Presidency (including Sind)

Age Groups	Gujarat	Bombay Presidency (including Sind)
0—5	149	150
5—10	133	131
10—15	122	115
15—20	95	89
20—30	171	183
30—40	135	146
40—50	100	94
50—60	58	55
60 and over	37	37

Table No. 13

Table showing the Distribution of Population into Males and Females.

States	Total Population	Males	Females
A. Western India Agency :-			
Palanpur State	2,64,179	1,36,445	1,27,734
Radhanpur State	70,530	35,977	34,553
Banas Kantha Agency :-			
Tharad State	54,311	27,765	26,546
Wao State	20,721	10,613	10,108
Malek Shri Jorawar			
Khan's State (Varahi)	3,008	1,551	1,457
Rest of the Banas			
Kantha Agency	1,25,513	65,741	59,772
Total A.	5,38,262	2,78,092	2,60,170
B. Baroda State :-			
Baroda City and Cantt.	1,12,860	62,744	50,116
Baroda Division	7,11,481	3,74,884	3,36,597
Mehsana Division	10,10,007	5,12,421	4,97,586
Navsari Division	4,04,377	2,03,168	2,01,209
Total B.	22,38,725	11,53,217	10,85,508
C. British Districts :-			
Ahmedabad District	9,99,768	5,28,190	4,71,578
Broach District	3,34,170	1,74,894	1,59,276
Kaira District	7,41,650	3,95,104	3,46,546
Panch Mahals	4,54,526	2,36,622	2,17,904
Surat District	6,93,613	3,48,283	3,45,330
Total C.	32,23,727	16,83,093	15,40,634
D. Bombay States and Agencies :			
Cambay State	87,761	46,851	40,910
Mahikantha Agency :-			
Idar State	2,62,660	1,31,927	1,30,733
Rest of Mahikantha Agency	2,55,504	1,31,471	1,24,033
Revakantha Agency :-			
Rajpipla State	2,06,114	1,06,445	99,669
Chhota-Udepur State	1,44,640	75,109	69,531
Devgad Bariya State	1,59,429	81,522	77,907
Lunawada State	95,162	49,238	45,924
Balasinor State	52,525	27,383	25,142
Sant State	83,531	42,822	40,709
Sankheda-Mewas State	59,139	30,642	28,497
Rest of Revakantha Agency	87,546	45,972	41,574
Bansda State	48,839	25,513	23,326
Dharampur State	1,12,031	57,963	54,068
Sachin State	22,107	10,576	11,531
Dangs	33,748	18,268	15,480
Total D.	17,10,736	8,81,702	8,29,034
Grand Total A, B, C & D.	77,11,450	39,96,104	37,15,346

Table No. 14

Table giving a comparative idea of the number of females per 1000 males for the various areas in India.

Province	Females per 1000 Males
Bombay Presidency (including Sind)	909
Ajmer-Merwara	892
Assam	909
Baluchistan	778
Begal	924
Bihar and Orissa	1,008
Burma	958
Central Provinces and Berar	1,000
Madras	1,025
North-West Frontier Province	843
Punjab	831
United Provinces	904
Baroda	942
Mysore	955
Kathiawar	966

Table No. 15

Table showing Ratio of Females per 1000 Males.

States	Females per 1000 males
GUJARAT	930
A. Western India States Agency:	
Palanpur State	941
Radhanpur State	972
Banas Kantha Agency:	925
Tharad State	964
Wao State	982
Malek Shri Jorawar Khan's State (Varahi)	939
Rest of the Banas Kantha Agency	909
B. Baroda State (Okhamandal and Amreli excluded)	942
Baroda City and Cantonment	794
Baroda Division	899
Mehsana Division	973
Navsari Division	990
C. British Districts of Gujarat:	916
Ahmedabad District	894
Broach District	909
Kaira District	878
Panch Mahals	920
Surat District	991

(Contd. on next page)

Table No. 15 (Contd).

Table showing Ratio of Females per 1000 Males

States	Females per 1000 males
D. Bombay States and Agencies in	
Gujarat	940
Cambay State	872
Mahikantha Agency	970
Idar State	992
Rest of the Mahikantha Agency	947
Revakantha Agency	935
Rajpipla State	944
Chhota-Udepur State	933
Devgad-Bariya State	951
Lunawada State	939
Balasinor State	926
Sant State	953
Sankheda-Mewas	903
Rest of the Revakantha Agency	913
Bansda State	885
Dharampur State	931
Sachin State	1091
Dangs	833

Table No. 16.

Table showing the Division of Total Population into Rural and Urban—Males and Females

States	Total Population	Urban		Rural	
		Males	Females	Males	Females
A. Western India States Agency:—					
Palanpur State	2,64,179	15,188	14,178	1,21,257	1,13,556
Radhanpur State	70,530	5,559	5,666	30,418	28,887
Banas Kantha Agency:					
Tharad State	54,311	....	....	27,765	26,546
Wao State	20,721	....	....	10,613	10,108
Malek Shri Jorawar Khan's State (Varahi)	3,008	....	....	1,551	1,457
Rest of the Banas Kantha Agency	1,25,513	....	....	65,741	59,772
Total A.	5,38,262	20,747	19,844	2,57,345	2,40,326
B. Baroda State:—					
Baroda City	1,12,860	62,744	50,116	....	....
Baroda Division	7,11,481	66,335	58,097	3,08,549	2,78,500
Mehsana Division	10,10,007	88,608	88,139	4,23,813	4,09,447
Navsari Division	4,04,377	30,295	30,292	1,72,873	1,70,917
Total B.	22,38,725	2,47,982	2,26,644	9,05,235	8,58,864
C. British Districts:					
Ahmedabad District	9,99,768	2,13,396	1,86,172	3,14,794	2,85,406
Broach District	3,34,170	36,999	31,881	1,37,895	1,27,395
Kaira District	7,41,650	66,458	59,162	3,28,646	2,87,384
Panch Mahals	4,54,526	38,926	33,892	1,97,696	1,84,012
Surat District	6,93,613	75,296	67,307	2,72,987	2,78,023
Total C.	32,23,727	4,31,075	3,78,414	12,52,018	11,62,220
(Contd. on next page.)					

(Contd. on next page.)

Table No. 16 (Contd.)

Table showing the Division of Total Population into Rural and Urban—Males and Females

States	Total Population	Urban		Rural	
		Males	Females	Males	Females
D. Bombay States and Agencies.—					
Cambay State	87,761	18,818	17,643	28,033	23,267
Mahikantha Agency.—					
Idar State	2,62,660	7,528	7,453	1,24,399	1,23,280
Rest of the Mahikantha Agency	2,55,504	9,629	9,718	1,21,842	1,14,315
Reva Kantha Agency.—					
Raipipla State	2,06,114	8,906	7,974		91,695
Chhota Udepur State	1,44,640	3,567	2,867		66,664
Devgad-Bariya State	1,59,429	3,862	3,114		74,793
Lunawada State	95,162	5,768	6,128		39,796
Balasinor State	52,525	4,928	4,782		20,360
Sant State	83,531	1,947	1,904		38,805
Sankheda-Mewas	59,139				28,497
Rest of Revakantha Agency	87,546				41,547
Bansda State	48,839				21,240
Dharampur State	1,12,031	2,253	2,086		50,422
Sachin State	22,107	3,572	3,646	54,391	
Dangs	33,748	648	541	9,928	10,990
Total D.	17,10,736	71,426	67,856	18,268	15,480
Grand Total A,B,C & D.	77,11,450	7,71,230	6,92,758	8,10,276	7,61,178
Total					
A	5,38,262		Urban		30,33,588
B	22,38,725				Rural
C	32,23,727				4,97,671
D	17,10,736				17,64,099
Grand total	77,11,450		14,63,988		24,14,238
					15,71,454
					62,47,462

Table No. 17

Table Showing Literacy by Age and Sex in Gujarat

AGE	T O T A L			L I T E R A T E		
	Persons	Males	Females	Persons	Males	Females
0-5	5,65,827	5,70,957	....	....	....
5-10	5,34,915	4,82,066	74,196	56,122	18,074
10-15	5,00,313	4,34,263	1,23,695	96,138	28,557
15-20	3,77,075	3,49,087	1,44,398	1,16,169	28,229
20 and over	19,81,889	18,29,262	5,97,202	5,29,454	67,748
Unspecified	5,411	4,650	....	....	....
Total	39,65,430	36,70,285	9,39,491	7,96,883	1,42,608

AGE	I L L I T E R A T E			L I T E R A T E I N E N G L I S H		
	Persons	Males	Females	Persons	Males	Females
0-5	5,65,827	5,70,957	....	....	....
5-10	4,78,793	4,63,992	1,590	1,351	239
10-15	8,10,881	4,05,175	5,877	5,253	624
15-20	5,81,764	2,60,906	15,104	14,001	1,103
20 and over	32,13,949	14,52,435	51,830	48,878	2,952
Unspecified
Total	66,86,163	31,63,136	74,401	69,483	4,918

Table No. 18

Table giving comparative idea of Literacy as prevailing in various Age Groups in Gujarat, Kathiawar and Baroda.

Age Group	Gujarat			Kathiawar			Baroda		
	Total	For each		Total	For each		Total	For each	
	per mille	1000		per mille	1000		per mille	1000	
	popu- lation	Males	Females	popu- lation	Males	Females	popu- lation	Males	Females
5-10	72	38	34	80	60	20	118	83	25
10-15	132	71	61	139	105	34	221	159	52
15-20	198	103	95	194	153	41	331	239	72
20 and over	156	81	75	158	135	23	208	182	26

Table No. 19

Table showing Percentage of Urban Population in Principal Units of Gujarat.

Unit	No. of Towns	Percentage of Urban Population to Total Population
Palanpur State	2	11
Radhanpur State	1	16
Tharad State	..	..
Wao State	..	..
Malek Shri Jorawar Khan's State (Varahi)	..	..
Baroda City	2	100
Baroda Division	17	17
Mehsana Division	16	17
Navsari Division	9	15
Ahmedabad District	12	40
Broach District	5	21
Kaira District	10	17
Panch Mahals	5	16
Surat District	5	21
Cambay State	2	42
Idar State	3	6
Rajpipla State	2	8
Chhota-Udepur State	1	4
Devgad-Bariya State	1	4
Lunawada State	1	13
Balasinor State	1	18
Sant State	1	5
Sankheda-Mewas	..	..
Bansda State	1	9
Dharampur State	1	6
Sachin State	1	5
Dangs	..	..

Table No. 20

Table giving the Percentage of Urban and Rural Population to Total Population for the various units in India.

Units	Percentage of Urban and Rural Population to Total Population	
	Urban	Rural
Kathiawar	25.5	74.5
Bombay Presidency (including Sind)	20.9	79.1
Assam	3.4	96.6
Madras	13.6	86.4
United Provinces	11.2	88.8
North-West Frontier ..	8.2	91.8
Central Provinces and Berar ..	9.8	90.2
Bihar and Orissa	4.0	96.0
Gwalior	11.2	88.8
Mysore	15.9	84.1
Punjab	12.4	87.6
Bengal	7.3	92.7

Table

Table showing Cities, Towns and

State or District	No. of Towns and Villages	Popu- lation	Under 500		500-1000		1000-2000		2000-	
			No.	Popu- lation	No.	Popu- lation	No.	Popu- lation	No.	No.
A. Western India										
States Agency :										
Palanpur State	549	264179	399	94005	106	70745	31	42429	11	
Radhanpur State	165	70530	131	29571	26	18972	6	7123	1	
Banas Kantha Agency										
Tharad State	164	54311	137	31742	23	14318	3	4008	1	
Wao State	60	20721	49	10038	8	4940	2	2984	1	
Malek Shri Jorawar Khan's State (Varahi)	15	3008	15	3008	..	..	..	..	..
Rest of the BanasKantha	320	125313	249	60641	54	35778	13	19820	4	
Total A ..	1273	538262	980	229005	217	144753	55	76364	18	
B. Baroda State :										
Baroda City & Cantonment	2	112860	..	..	..	..	..	..	..	1
Baroda Division	840	711481	415	111921	231	163637	128	177089	54	
Mehsana Division	1053	1010007	455	123087	312	223485	162	262966	80	
Navasari Division	785	404377	544	121601	154	104497	66	85495	15	
Total B ..	2680	2238725	1414	356609	697	491619	386	525550	150	
C. British Districts										
Ahemdabad Dist.	881	999768	443	126587	252	177636	138	181473	30	
Broach Dist.	408	334170	213	60396	123	87782	50	70095	17	
Kaira Dist.	580	741650	183	56547	171	126821	139	199117	74	
Panch Mahals	653	454626	370	98022	186	130716	67	87528	26	
Surat Dist.	785	693613	400	104538	212	147024	123	166113	44	
Total C ..	3307	3223727	1609	446090	944	669979	517	704326	191	
D. Bombay States & Agencies										
Cambay State	104	87761	64	13530	26	16676	10	13081	4	
Mahikantha Agency :										
Idar State	1070	262660	944	139000	93	64737	27	37396	5	
Rest of the Mahikantha Agency	796	255504	670	112213	75	53164	41	54575	8	

(Contd. on

No. 21

Villages classified by Population.

5000	5000-10000		10000-20000		20000-50000		50000-100000		100000 & over	
Popu- lation	No.	Popu- lation	No.	Popu- lation	No,	Popu- lation	No.	Popu- lation	No-	Popu- lation
27634	1	9019	..	..	1	20347	..	..	..	..
3639	..	..	1	11225	..	..	..	..	..	..
4243	..	..	..	..	..	..	..	..	..	..
2759	..	..	..	..	..	..	..	..	..	..
..
9274	..	..	..	..	..	..	..	..	..	..
47549	1	9019	1	11225	1	20347	..	..	..	..
3221	..	..	..	..	..	..	..	..	1	109639
152106	8	48308	4	58420	..	..	..	..	..	..
230684	7	52184	5	67303	2	50298	..	..	..	..
36238	5	32149	..	..	1	24397	..	..	..	..
422249	20	132641	9	125763	3	74695	..	..	1	109639
79478	15	91886	2	32708	..	..	..	..	1	310000
46989	2	10845	2	23759	1	34726	..	..	..	..
200405	8	58990	4	56186	1	34584	..	..	..	..
68963	2	12094	..	..	2	57203	..	..	..	..
128260	3	16858	2	31825	..	..	1	98936	..	..
533095	30	190673	10	144478	4	126063	1	98936	1	310000
12597	..	..	..	..	1	31877	..	..	..	..
15892	1	5635	..	..	..	..	..	..	..	..
21120	2	14432	..	..	..	..	..	..	..	..

next page)

Table No.

Table showing Cities, Towns and

State or District	No. of Towns and Villages	Population	Under 500		500-1000		1000-2000-		2000	
			No.	Population	No.	Population	No.	Population	No.	No.
Revā Kantha Agency :—										
Rajpipala State	714	206114	602	93890	84	56117	21	27817	..	
Chhota-Udepur State	531	144640	48610	2023	33	20897	11	15286	..	
Devgad-Bariya State	415	159429	316	73329	82	56773	13	16093	3	
Lunawada State	340	95162	304	51445	25	17193	9	11897	1	
Balasinar State	103	52525	72	14106	21	14104	8	10742	1	
Sant State	278	83531	232	45001	40	28151	5	6528	1	
Sankheda-Mewas	312	59139	293	41674	15	10254	3	4705	1	
Rest of the Rewa Kantha Agency	299	87546	258	43210	24	15676	14	19433	3	
Bansda State	87	48839	55	16021	22	15383	8	11023	2	
Dharampur State	266	112031	190	41504	59	39109	12	15333	4	
Sachin State	21	22107	7	2118	5	3482	6	8456	3	
Dangs	298	33748	297	33038	1	710	..	..	..
..Total D ..	5634	1710736	4790	822102	604	412426	188	252365	42	
Grand Total A, B, C, & D (Gujarat)	12894	7711450	8793	1853806	2462	1718777	1146	1558605	401	
TOTAL A	1273	538262	980	299005	217	144753	55	76364	18	
B	2680	2238725	1414	356609	697	491619	386	525550	150	
C	3307	3223727	1609	446090	944	669979	517	704326	191	
D	5634	1710736	4790	822102	604	412426	188	252365	42	
Grand Total Gujarat	12894	7711450	8793	1853806	2462	1718777	1146	1558605	401	

21 (contd.)

Villages classified by Population.

5000	5000-10000	10000-20000	20000-50000	50000-100000	100000 & over						
Popu- lation	No.	Popu- lation	No.	Popu- lation	No.	Popu- lation	No.	Popu- lation	No.	Popu- lation	No.
14988	..	..	1	13302	..	..	..	..	..	..	..
..	1	6434	..	..	..	..	..	..	..	..	..
6258	1	6976	..	..	..	..	..	..	..	..	..
2731	..	..	1	11896	..	..	..	..	..	..	..
3863	1	9710	..	..	..	..	..	..	..	..	..
3851	..	..	..	..	..	..	..	..	..	..	..
2506	..	..	..	..	..	..	..	..	..	..	..
9227	..	..	..	..	..	..	..	..	..	..	..
6412	..	..	..	..	..	..	..	..	..	..	..
8867	1	7218	..	..	..	..	..	..	..	..	..
8051	..	..	..	..	..	..	..	..	..	..	..
..
116363	7	50405	2	25198	1	31877	..	..	..	..	..
1119256	58	382738	22	306624	9	252982	1	98936	2	419639	
47549	1	9019	1	11225	1	20347	..	..	..	..	..
422249	20	132641	9	125723	3	74695	..	..	1	109639	
533095	30	190673	10	144478	4	126063	1	98936	1	310000	
116363	7	50405	2	25198	1	31877	..	..	..	..	..
1119256	58	382738	22	306624	9	252982	1	98936	2	419639	

Table No. 22

Table giving comparative idea of the distribution of Village Population in different units in Gujarat and Baroda State.

Unit	GUJARAT			BARODA STATE				
	No. of Villages	P. C. to the total No. of Villages	Population	P. C. to the total Population	No. of Villages	P. C. to the total No. of Villages	Population	P. C. to the total Population
Class I Under 500	8,793	68.8	18,53,806	24.0	1,580	54.1	4,00,578	16.7
Class II 500-1000	2,462	19.5	17,18,777	22.2	777	26.6	5,47,123	22.3
Class III 1000-2000	1,146	8.6	15,58,605	20.2	419	14.4	5,69,393	23.3
Class IV 2000-5000	401	3.1	11,19,256	14.5	144	4.9	4,02,910	16.4

Table No. 23
Table showing Occupations or Means of Livelihood.

Occupation	Total following Occupation	As Principal Occupation		As Working Dependents		As Subsidiary to other Occupation	
		Males	Females	Males	Females	Males	Females
Total all Classes	..	36,30,492	19,39,601	4,34,476	3,61,964	7,73,971	1,10,397
Class A							
Production of Raw Materials ..	26,27,576	12,96,811	2,86,957	3,02,534	6,80,269	55,535	5,470
Class B							
Preparation and Supply of Material substances ..	5,78,819	4,00,647	67,517	34,368	42,359	31,609	2,319
Class C							
Public Administration and Liberal Arts ..	1,26,834	1,03,117	6,674	4,082	1,573	11,101	287
Class D							
Miscellaneous ..	2,97,263	1,39,026	73,328	20,980	49,770	12,152	2,007

Table No. 24
Table showing the distribution of Workers in the various Occupations.

Nos.	Sub Class	As Principal Occupation		As Working Dependents		As Subsidiary to other Occupation	
		Males	Females	Males	Females	Males	Females
CLASS A.							
I	Exploitation of Animals & Vegetation	12,93,486	2,86,355	3,02,273	6,79,889	54,760	5,330
II	Minerals	3,325	602	261	380	775	140
CLASS B.							
III	Industry	2,46,606	47,581	23,302	33,115	17,230	1,467
IV	Transport	37,734	4,731	1,853	753	3,198	59
V	Trade	1,16,287	15,205	9,213	8,491	11,181	793
CLASS C.							
VI	Public Force	23,459	85	277	139	2,770	17
VII	Public Administration	32,381	1,356	885	372	4,647	40
VIII	Professions and Liberal Arts	47,277	5,233	2,920	1,062	3,684	230
CLASS D							
IX	Persons living on their Income	11,049	2,667	648	90	1,172	108
X	Domestic Service	26,224	3,378	1,371	1,547	1,246	114
XI	Insufficiently described Occupations..	83,464	63,983	13,540	45,244	8,757	1,635
XII	Unproductive	18,289	3,300	5,421	2,889	977	150
TOTAL		19,39,601	4,34,476	3,61,964	7,73,971	1,10,397	10,083

Table No. 25

Table showing the Details of Sub Class III—Industry

Order No.	Description	Principal Occupation		Working Dependents		Subsidiary	
		Males	Females	Males	Females	Males	Females
5	Textiles	87,576	24,359	7,016	6,931	2,977	618
6	Hides, Skins, etc.	14,677	1,710	1,422	3,096	1,833	71
7	Wood	28,261	2,390	2,656	3,268	3,709	226
8	Metals	12,903	443	1,486	662	995	29
9	Ceramics	48,479	3,465	2,987	8,080	2,111	140
10	Chemical Products	7,548	1,700	894	1,655	655	89
11	Food	6,696	2,289	597	731	1,118	118
12	Dress and the Toilet	36,992	6,459	3,688	6,367	2,306	103
14	Building, etc.	13,028	1,311	608	396	952	18
17	Miscellaneous of Undefined	19,280	3,383	1,857	1,914	520	47
Total		2,45,440	47,509	23,211	33,100	16,476	1,459

Table No. 26
Table showing the Details of Sub-Class V—Trade

Order No.	Description	Earners		Working Dependents		Subsidiary	
		Males	Females	Males	Females	Males	Females
23	Banks, establishment of credits, etc.	12,476	1,449	645	248	2,670	71
24	Brokerage, commission agency, etc.	963	35	50	11	173	5
25	Trade in Textile	11,477	185	873	102	854	26
26	Trade in skins, leather, etc.	1,119	53	100	49	182	1
27	Trade in Wood	771	130	37	138	44	16
31	Hotels, cafes, restaurants, etc.	6,572	277	639	147	722	12
32	Other Trade in food-stuffs	44,907	10,159	3,849	5,503	3,850	405
36	Trade in means of transport	2,398	13	210	356	475	..
37	Trade in fuel	1,413	641	134	513	251	149
38	Trade in articles of luxury	1,886	89	145	57	48	10
39	Trade in other sorts	29,650	2,027	2,305	1,327	1,867	77
Total		1,13,632	15,058	8,987	8,451	11,136	772

Table No. 27

Table giving the Cultivated Areas and Cultivable Land lying idle in Gujarat.

Part I†

Year	State	Land not available for cultivation.	Cultivable waste other than fallow.	Current fallow	Net area sown.
1936-37	British Districts of Gujarat:				
	Ahmedabad ..	497,469	77,067	2,77,030	1,604,846
	Kaira ..	157,380	15,523	28,372	832,181
	Broach & Panch Mahals ..	364,677	100,270	127,098	1,170,610
	Surat ..	176,654	44,942	21,166	769,253
1936-37	Baroda State : (Amreli & Okhamandal excluded)				
	Baroda ..	172,106	91,314	..	930,469
	Mehsana ..	232,085	297,698	..	1,330,995
	Navsari ..	295,366	152,166	..	513,029
	Other Gujarat States:				
1936-37	Dharampur ..	12,712	141,108	..	137,727
1936-37	Sachin ..	1,945	4,810	625	21,302
Total area of Gujarat in acres		1,910,394	924,898	454,291	7,310,312
Total area of the above territories in acres		11,360,640			
21,610,720					

Part II‡

1935-36	Radhanpur ..	Talpad	* 193,967	..	169,616
		Pasaita	* 19,640	..	43,684
1931-32	Ilol ..		* 541	..	16,016
1937-38	Sant State ..		* 15,554	..	90,870
1935-36	Bansda ..		* 12,725	..	51,116
Total area of these States in acres:-1,132,160			242,427	..	371,302
Total area in acres Parts I & II combined :-12,492,800			1,166,325	..	7,681,614

†. Figures taken from the Agricultural Statistics of India 1936-37 Volumes I and II.

‡. Figures taken from the Administration Reports of the States concerned.

* Cultivable waste or cultivable land lying idle.

N.B.- This Table gives the figures for more than 57 per cent area of Gujarat.

Table No. 28.

Table giving the figures of the Irrigated Land in the various States of Gujarat. †

(Areas in acres)

Year	State or District	Government Canals	Private Canals	Tanks	Wells	Other Sources	Total
1936-37	British Districts of Gujarat						
	Ahmedabad ..	59	298	378	54,625	2,533	57,893
	Kaira ..	601	..	445	31,432	766	33,244
	Broach and Panch Mahals ..	161	..	70	4,055	155	4,441
	Surat ..	..	..	1,042	6,377	83	7,502
	Gujarat States:-						
1936-37	Baroda State (Amreli and Okhamandal excluded)						
	Baroda Division ..	..	..	176	22,502	531	23,209
	Mehsana Division ..	..	..	..	1,10,293	..	1,10,293
	Naysari Division	159	..	..	3,741	47	3,947
1936-37	Dharampur ..	..	..	..	126	..	126
1936-37	Sachin ..	..	..	1,063	1,175	..	2,238
	Total	980	298	3,174	2,34,326	4,115	2,42,893

† Figures taken from the Agricultural Statistics of India 1936-37, Volumes I and II.

Table No. 29

Table giving the total number of Ploughs in British Gujarat, Baroda and some of the remaining Gujarat States.

Year	State or District	Ploughs
1934-35	Ahmedabad District	63,303
"	Kaira District	63,779
"	Broach and Panch Mahals	101,511
"	Surat District	51,812
A. Total British Gujarat		280,405
1936-37	Baroda	57,975
"	Mehsana	88,636
"	Navasari	38,073
B. Total Baroda (Gujarat Area)		184,684
1936-37	Dharampur	14,248
"	Sachin	1,224
1934-35	Idar	19,251
"	Vijaynagar—Information not available	..
1934-35	Palanpur	30,498
1935-36	Radhanpur	7,000
1937-38	Cambay	5,509*
1932-33	Mansa	720
1930-31	Ilol	430
1936-37	Balasinor	7,122
1937-38	Sant	13,545
1934-35	Rajpipla	22,375
1935-36	Bansda	6,235**
1933-34	Jambughoda	1,480
1937-38	Lunawada—Information not available	..
C. Total some of the Gujarat States		129,637
A. British Gujarat		280,405
B. Baroda (Gujarat Area)		184,684
C. Some of the remaining Gujarat States		129,637
Total ..		594,726
Our estimate for the whole of Gujarat ..		800,000

* Considering 10 with 4 bullocks to be 20 with 2 bullocks

** Considering 2 with 4 bullocks to be 4 with 2 bullocks

N. B. This Table represents figures for about 76.5 per cent area of Gujarat. It has been computed from the Agricultural Statistics of India, Volumes I and II, 1936-37; and the Administration Reports of the States concerned.

Table No. 30

Table giving the number of Acres under cultivation in British Gujarat from 1931-32 to 1934-35.

Year	Ahmedabad	Broach	Panch Mahals	Kaira	Surat
1931-32	1,558	638	553	828	760
1932-33	1,557	638	560	829	761
1933-34	1,592	637	558		
1934-35	1,592	..	..	835	766

N. B. This Table has been computed from the Agricultural Statistics of India, Volume I for the years concerned.

Table No. 31

Table giving the Revenue Receipts of British Gujarat, Baroda and some of the remaining Gujarat States.

Year	State or District	Revenue Receipts in Rupees
1936-37	Ahmedabad District	23,68,724
"	Kaira District	21,05,086
"	Broach and Panch Mahals	27,25,821
"	Surat District	25,79,304
	A. Total British Gujarat	97,78,935
1936-37	Baroda	47,69,000
"	Mehsana	38,39,000
"	Navasari	20,17,000
	B. Total Baroda (Gujarat area)	106,25,000
1937-38	Palanpur	5,30,159
1935-36	Radhanpur	4,26,809
1936-37	Cambay	4,98,783
1932-33	Mansa	84,376
1930-31	Ilol	31,932
1936-37	Balasinor	1,77,213
1937-38	Sant	1,79,461
1934-35	Rajpipla	9,30,973
1935-36	Bansda	2,22,227
1933-34	Jambughoda	44,152
	C. Total some of the Gujarat States	31,26,085
	A. British Gujarat	97,78,935
	B. Baroda (Gujarat Area)	1,06,25,000
	C. Some of the remaining Gujarat States	31,26,085
		2,35,30,020
	Our estimate for the whole of Gujarat ..	3,75,00,000

N. B. This Table gives the Revenue Receipts of 66 per cent area of Gujarat and it has been computed from the Land Revenue Administration Report of the Province of Bombay 1936-37 and from the Administration Reports of the States concerned.

Table No. 32

Table giving the Prices of Staple Food Grains in some of the Gujarat States during the year 1935-36.

State	Commodity				
	Jowar	Gram	Bajra	Rice	Wheat
	(Price per maund of 40 Seers)				
	Rs. as. p.	Rs. as. p.	Rs. as. p.	Rs. as. p.	Rs. as. p.
Palanpur	1 6 0	1 8 0	1 8 0	3 0 0	1 14 0
Radhanpur				..	
Oct. 36	1 8 0	2 0 0	1 6 0	....	1 12 0
Sant					
Mar. 36	....	0 12 9	1 0 0	2 0 0	1 0 0
Bansda					
Mar. 36	1 8 0	1 12 0	....	1 0 0	2 8 0
Balasinor					
Mar. 36	....	1 1 3	1 8 7	2 13 0	1 4 0
Lunawada					
Oct. 36	....	1 8 0	1 14 0	2 4 0	....
Cambay					
May 36	....	1 10 0	1 2 0	2 0 0 } to 3 4 0 }	1 4 0

N. B. This Table has been computed from the Administration Reports of the States concerned.

Table No. 33

Table showing Persons Employed under Major Occupational Heads in Gujarat.

Industry	Principal Occupations		Working Dependents,		Subsidiary	
	Males	Females	Males	Females	Males	Females
Textiles ..	87,576	24,359	7,016	6,931	2,977	618
Toilet and Dress..	36,992	6,459	3,688	6,367	2,306	103
Wood ..	28,261	2,390	2,656	3,268	3,709	226
Building ..	13,028	1,311	608	396	952	18
Ceramics ..	18,479	3,465	2,987	8,080	2,111	140
Metals ..	12,903	443	1,486	662	995	29
Chemical Products	7,548	1,700	894	1,655	655	89
Food Industries ..	6,696	2,289	597	731	1,118	118
Hides, Skins, etc..	14,677	1,710	1,422	3,096	1,833	71
Furniture Industries ..	687	58	85	54	28	7
Production & Transmission of Physical force ..	337	10	4	..	2	..
Construction of means of Transport. . .	232	4	2	1	24	1
Miscellaneous & Undefined Industries ..	19,280	3,383	1,857	1,914	520	47
Total ..	2,46,696	47,581	23,302	33,155	16,530	1,467

Table No. 34
Table showing the Artisans in Gujarat

Occupation	Earners		Working Dependents		Subsidiary	
	Males	Females	Males	Females	Males	Females
Workers in leather ..	2,922	109	296	420	342	9
Carpenters, etc. ..	21,627	270	1,750	278	1,777	34
Basket makers, etc. ..	5,143	2,082	800	2,931	670	191
Blacksmiths, etc. ..	10,007	414	1,203	505	961	29
Workers in brass, copper and bell metal	2,457	6	253	7	13	..
Other metal workers	178	8	14	12	1	..
Potters	15,019	2,856	2,598	7,149	1,613	115
Brick and Tile makers	3,295	566	369	890	469	25
Other workers in Ceramics ..	165	43	20	41	29	..
Vegetable oil workers	6,215	1,053	794	1,395	619	68
Other oils	117	253	15	37	4	10
Rice pounders, etc. ..	971	1,582	78	494	29	42
Grain parchers ..	192	50	20	38	4	7
Makers of sugar Molasses and Gur ..	257	18	17	..	1	..
Sweetmeat makers, etc.	1,266	115	70	89	515	53
Other Food Industries	584	16	41	5	67	..
Boots, Shoes, etc. makers	3,642	221	374	748	191	6
Embroiders, Hat makers, etc. ..	87	65	18	96	4	1
Other (dress and toilet)	14	1	5	..	..	..
Cabinet makers, etc.	623	27	83	17	16	..
Upholsterers, etc.	64	31	2	37	12	..
Lime-burners, etc.	13,028	1,311	608	396	952	18
Total	87,943	11,079	9,428	15,675	5,269	615

Table No. 35

Table giving the important Handloom Centres of Gujarat together with the number of looms and the yarn used at these centres:

Centre.	No. of looms.	Yarn used.
Ahmedabad	500	
Dholka	335	60 ^s , 80 ^s .
Chaloda	60	30 ^s , 20 ^s , 6 ^s , 8 ^s .
Bavla	15	Rough yarn for Khaddar.
Nadiad	20	do
Kaira	30	8 ^s , 20 ^s .
Vadtal-	40	20 ^½ , 6 ^½ .
Borsad	40	10 ^½ .
Karamsad	12	8 ^½ ^s , 29 ^s , 2/20 ^s , 2/130 ^s , 2/40 ^s and 2/84 ^s .
Uttarsanda	15	20 ^s .
Gutal	9	20 ^s .
Surat	700	
Mandvi	93	30, 40,
Chikhli	33	30, 40.
Pardi	22	
Bardoli	45	30, 40.
Bulsar	70	
	Sari Wvg.	} 30, 40, 24.
	25	
	Mast cloth Wvg.	
Broach	101	20 ^½ ^s , 10 ^½ ^s .
Ankleshwar	70	
Dahod	30	
Katwara	40	15 using mill waste yarn & 25 rough yarn.
Garbada	8	Rough yarn for Khaddar.
Patan	500	40, 50
Petlad	200	Mill waste yarn for 'dhottars' & coarse yarn for Khaddar.
Baroda	150	80 ^s , 100 ^s , 120 ^s , 30 ^s , & 40 ^s .
Gandevi	125	30, 40.
Vaso	100	
Visnagar	75	Rough yarn for Khaddar.
Visnagar Side	100	do do
Kheralu Side	100	do do
Sankheda	10	
Kanodar	600	2/20
Rest of Palanpur	100	Rough yarn for Khaddar.
Radhanpur State	50	do do
Sami	15	do do
Idar State (Vadali)	50	do do
Cambay	2,088	Sari 2/80; Carpets, 2/6
Lunawada	30	Rough yarn for Khaddar
Rampur	10	do do

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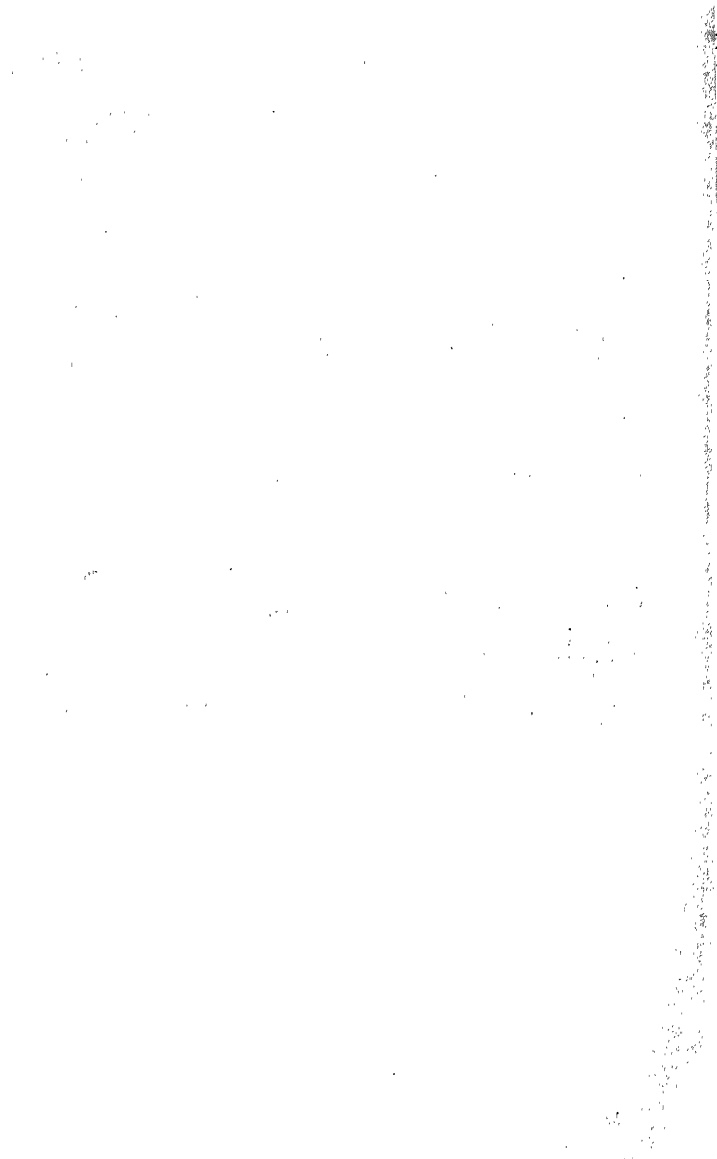


Figure 1. The effect of the concentration of the *Agrobacterium* suspension on the transformation efficiency of *Agrobacterium* strains.

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N. B. *Wealth of Gujarat* has been recommended and prescribed by the Baroda State for its District Libraries.

Notes: Comments: Views: Reviews:

“Prof. Trivedi is not new to our readers. He is known to have conducted investigations on the economic and industrial conditions of Kathiawar and Gujarat, and has published many pamphlets regarding the organisation and development of some of the important industries of the regions. It is noteworthy that the author himself has toured around these areas and taken care to compile first-hand information on the important economic problems of each of these places. The conclusions reached by the author have been arrived at after a close study of immense statistical data and numerous state records and administration reports. His remarks and suggestions must, therefore, receive due attention by all those who are desirous of improving the economic conditions of these places.

* * *
“Regional studies, especially from the economic point of view, are indispensable in a country of such vast size as India. They have, however, yet to take deep root. Investigations conducted by impartial and expert students of economics like Prof. Trivedi throw great light both on the resources and deficiencies of a particular region. They also focus the attention of the public and the Government alike on the need for improving the economic conditions of such regions. Again, these studies would also help the flow of capital and enterprise towards such development. In the post-war period, when this country is expected to launch a large-scale economic drive, with a view to raising the standard of living of its people, books of the type under review will surely be found very useful. It is to be hoped that many more of this type will be forthcoming.” —*Commerce*

"The necessity of research and collection of authentic data for constructing an objective study in the realm of applied economics is being increasingly felt by the stern students of

Indian Economics. In order to build up any accurate generalisation and to visualize the different aspects of Indian economic life on a synthetic basis, the material resources and socio-economic forces of India have got to be studied from regional stand-points—as a vast country like India offers many apparently peculiar and divergent economic problems. It is only through the compilation and collection of the essential factors gleaned from the survey of economic data of the various parts of this country, that any reliable approach to India's multifarious economic problems is possible. So any contribution and addition to the laboratory of Indian economic statistics from this angle of vision is not only welcome, but also highly valuable and indispensable.

“Viewed in this perspective, the book under review is a great gift by the author to those interested to know in details the immense information of the economic resources of Gujrat. It is not too much to say that the author has harnessed all possible materials at his disposal to make the book thoroughly complete in its scope. The prodigious labour the writer has requisitioned, leaving no lacuna in respect of details, is simply praiseworthy and amazing. The book is divided into two parts. Part I furnishes a wealth of interesting details enumerating concisely the mineral, forest, agricultural, marine and cattle resources of Gujrat. The second part is replete with exhaustive discussions on the scope, method and the existing state of large and small scale (including cottage) industries of the region. The manner of treatment of the volume is both analytical and exploratory. The style of presentation of dry facts and figures is refreshingly lucid.”

—*Industry*

“Some time ago while reviewing his book “Kathiawar Economics”, *Commerce & Industry* expressed the hope that Prof. Trivedi, with his well-garnered knowledge of the economics of the Gujaratis of Western India, would fulfil his promise to bring out the publication under review, and an examination of *Wealth of Gujarat* shows that our expectations were not belied. To publish these days compendious tomes is very difficult, and despite the staggering bulk of the book under review, Prof. Trivedi must be congratulated for his painstaking labour, which we recognise to be a labour of love for people speaking his mother tongue, and the regimented display in one single place of the

voluminous data he has collected and the observations which emerge from his long personal application to the problems of Gujaratis on the spot.

"The economic and industrial resources of Gujaratis some 80 lakhs in number, who are spread over Indian States and Indian Provinces in a manner which certainly creates confusion for the administrator, are mapped out in thirteen chapters, and whether it is the economics of the SANKHEDA—an obscure village in Mul Gujarat, or the huge textile industry of Ahmedabad, Mr. Trivedi's book gives you all that is known and wanted by a student of India's economic and industrial affairs. We consider that regional studies of this kind, though likely to over-emphasise the problems of the few, are necessary for the integration of the problems of the many in this country in a pattern which ensures survival." —*Commerce & Industry*

"This [*Wealth of Gujarat*] is a companion volume to the author's previous publication, *Kathiawar Economics*, and shows the same detailed study and clear analysis of economic facts. In the earlier chapters of the book, Professor Trivedi gives a picture of the natural environments of Gujarat and proceeds to examine its economic resources, including agricultural development and transport facilities. The succeeding chapters of the book are devoted to a study of Industrial resources, with particular attention to village industries. A useful chapter has also been added showing the scope for further industrial development and giving a number of suggestions to businessmen and industrialists. There are not many Indian economists who have attempted regional economic surveys of this kind collecting all the available statistics and showing the way for further economic development. Prof. Trivedi's book is useful and interesting and will be widely welcomed in business circles and others interested in the study of economic conditions." —*Hindustan Times*

"This book [*Wealth of Gujarat*] is a survey of economic conditions in Gujarat, studied as one economic region. A great deal of interesting and useful information regarding the economic and industrial conditions of Gujarat has been collected by the author from several sources and from personal investigations. This study would be of much use to any agency interested in the economic development of Gujarat." —*Hindu*

"This is the first systematic attempt at a survey of Gujarat's economic resources and their present condition. The only important large-scale industry in this region is the textile industry. In dealing with this industry, the author quotes with disapproval the opinion of the Bombay Economic and Industrial Survey Committee that the growth of small powerloom factories should be restrained. He refers to Japan as an example in this respect and supports this system in as much as they eliminate evils of the managing agency system and other unwholesome features which more or less generally characterize large-scale industry.

* * * *

"More than sixty pages in the volume are devoted to a description of the textile industry and its different lines of manufacture. Silk Weaving factories, hosiery factories, cloth button industry, rope, twine and string manufacture, dyeing and calico printing, knot dyeing or bandhani, mud printing and gold thread manufacture, are all described in great detail. At every step the author makes recommendation for improving the prospects of the industry and of the workers in it, which will repay careful perusal."

—*Indian Textile Journal*

"....there is a lucid discussion on the existing conditions of Gujarat's industries, big and small, and economic conditions, and their prospects. All these are thoroughly analysed, and valuable suggestions are given by the author, which add to the utility of his book. The author has thus taken pains in gathering the statistics and information that are first-hand, and accurate, and his book merits appreciation and serious consideration."

—*Hindustan Review*

"I am much obliged to you for....a copy of each of your two books (*Kathiawar Economics*, and *Wealth of Gujarat*), which I have looked into with great interest....I shall be grateful to you, if you could kindly see your way to favour me with contributions for the *Hindustan Review*, from time to time, on subjects in which you have so well specialised."

DR. SACHCHIDANAND SINHA,

Bar-at-Law,

Vice-Chancellor, Patna University

"The treatise (*Wealth of Gujarat*) exceeded my best expectations. I hereby congratulate you on your honest research in compiling this publication, and hereby pay you my homage of appreciation, on the basis of nothing but sheer merit... I had the fortune or misfortune to work as a Principal in Gujarat for a few months and there I formed certain opinions about the wealth producing capacity of the Gujaratis and also the soil. All these opinions have been welded into deep rooted convictions by the perusal of a few pages of your book. I wished to stumble on such a book and to devour it. You have satisfied my hunger.... It is my.... sincere prayer that your pen may give birth to more such prodigies...."

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Sambhal (Muradbad), U. P.

"Thanks..... for the keen interest which you are evincing for the Rajpipla State and for the development of its resources. I am glad to note that you have taken genuine pains to give publication to the varied resources of that Rajpipla State in the book (*Wealth of Gujarat*) compiled by you....."

KHAN BAHADUR FEKQZ D. KOTHAVALA, B.A., LL.B.,
Dewan, Rajpipla State.

"With regard to your kind remarks regarding my humble self, allow me to thank you most sincerely, but as a matter of fact, the whole credit in compiling such a valuable piece of work (*Wealth of Gujarat*) goes to you....."

A. P. KODAISIA,
Revenue Commissioner, Idar State.

"વર્ણના અભ્યાસ અને ચિંતનના પરિપાક રૂપ 'ગુજરાતની સંપત્તિ' જોવો મહામુલો ગ્રંથ આપવામાટે પ્રો. ત્રીવેદીને અમારા અભિનંદન.

"આ ગ્રંથ કેવળ જનતા માટે નથી અને માત્ર ગુજરાતીઓ માટે પણ નથી. આ ગ્રંથ તો છે દેશના ઉદ્યોગપતિઓ, અર્થશાસ્ત્રીઓ, રાજપુરુષો, રાષ્ટ્રીય નેતાઓ, અને આજે અથવા આવતીકાલે જેના હાથમાં દેશનું સુકાન હોય તેવા સૌ કોઈના માટે. એ રીતે આવો અભ્યાસ પુણ્ય ગ્રંથ આજનાં સંયોગોમાં અંગ્રેજી ભાષામાં ઉતરે એ તદ્દન સ્વાભાવિક છે પરંતુ લેખક-પ્રકાશક પાસે તેઓ ગુજરાતી હોવાના કારણે એટલી આશા તો અવશ્ય રાખી શકાય કે અંગ્રેજીની સાથેસાથજ એમણે આ ગ્રંથનું ગુજરાતી ભાષાંતર પ્રગટ કરવું જોઈતું હતું....."

“આંકડાઓ અને નકર હકીકતો ઉપરજ નેનો આધાર છે એવાં લગભગ સાઝાચારસો પાનાનો ગ્રંથ આ વિષય ઉપર કદાચ પ્રથમ પહેલોજ છે. આટલી ઝીણવટપુર્વક આજ પહેલા ગુજરાતના સંપત્તિ શાસ્ત્રનો અભ્યાસ થયો હશે કે કેમ તે પણ એક સવાલ છે. પ્રો. ત્રીવેદી કોઈના દોરખા આ અભ્યાસ તરફ ખેંચાયા નથી કોઈ સંસ્થાએ પણ આ કાર્ય તેમને સોંપેલું નથી. પ્રસ્તાવના વાંચતા ખાતરી થાય છે કે કેવળ અંતઃપ્રેરણાથીજ આ અતી ઉપયોગી કાર્ય એમણે હાથમાં લીધું હતું આમ છતાં પ્રસ્તાવનામાં કે બીજે કોઈ સ્થળે આત્માશ્લાધાનો એક અંશ પણ નજરે પડતો નથી ને આત્મવિશ્વાસ તો ભારોભાર ભર્યો છે એમને ખાતરી છે કે આ પુસ્તક ગુજરાતનો વહીવટ કરનારાઓને અને ઉદ્યોગપતિઓને અવશ્ય ઉપયોગી થશે.

“એમણે જાતેજ સાધેલો અનેકનો સહકાર આ ગ્રંથની પાછળ પડેલો છે. વ્યાપારીઓ, કારીગરો, કાર્યકરો, મુખ્ય અમલદારો, પ્રધાન નાગરિકો, ઉદ્યોગપતિઓ એ સૌની પાસે એમણે પ્રશ્નોની હારમાળા રજુ કરી હતી. . . . અને ધીમે ધીમે એના જવાબો મેળવતા મેળવતા તેઓ અભ્યાસમાં આગળ વધતા હતા. અનેકવાર એમણે ગુજરાતનો પ્રવાસ ખેલ્યો, પ્રવાસ દરમ્યાન આ વિષયને લગતા સાઝાચારસો જેટલા પુસ્તકો પત્રિકાઓ અહેવાલો વગેરે મેળવ્યા. દેશીરાજ્યોના અહેવાલોમાંથી પણ એમણે પુરુષ માહિતી મેળવી.

“આ ગ્રંથને સર્વાંગ સંપૂર્ણ બનાવવા માટે લેખકે ખુબ પરિશ્રમ લીધો છે. ગુજરાતની વિકસિત અને અવિકસિત સંપત્તિની તપાસનો આવો પ્રયત્નજ આજ પહેલા કોણે કર્યો છે? ગુજરાતની આજની કરૂણ સ્થિતિના કારણો આ તપાસમાં એમને મળી ગયા છે. ગુજરાત કંગાલ નથી એની પાસે કોઈ સમૃદ્ધિ છે પણ એનો ઉપયોગ શી રીતે થાય? કોણુ કરે? કોણુ સમજાવે? કોણુ પ્રેરણા આપે? આ પરાધીન દેશમાં વ્યાપાર-ઉદ્યોગને વિકસાવવાના પુરા સાધનોએ ક્યાં છે? અને તેમાં ગુજરાતના નાનામોટા દેશીરાજ્યો, અર્ધજંગલી અવસ્થા ભોગવતી પછાત કોમો, વાહનવ્યવહારની અગવડો, અણધર મનુરો અને કારિગરો અને સૌથી વિશેષ રાજકર્તાની બેદરકારી પછી સંપત્તિ નીપજે શામાંથી :—

“આવા ગ્રંથનું વિસ્તૃત અવલોકન તો એની હકીકતો રજૂ કરવાથીજ આપી શકાય પરંતુ એટલો અવકાશ આ પાના ઉપર મળે નહીં. ઉપર જણાવેલી માહિતી ઉપરાંત ઉમેરવાનું એટલું જ છે કે કોઈપણ જાહેર સંસ્થા પુસ્તકાલય અને એ વિષયમાં રસ ધરાવતા વ્યાપારીઓએ આવા ઉપયોગી ગ્રંથના વાંચનથી વંચિત ન રહેવું જોઈએ.”

—જમલૂમી

“પ્રાપ્ય એટલી સઘળી માહિતીનો ઉપયોગ કરીને લેખકે ગુજરાતના ભાવિ વિકાસની સઘળી શક્યતાઓ આ ગ્રંથ (‘વેદ્ય ઓફ ગુજરાત’)

દારા ચીંધી બતાવી છે. સમૃદ્ધિગર્ભ ગુજરાતને આ રીતે એમણે તેના સ્વાતંત્ર્ય અને જગતમાં તેના રહેવા જોઈતા સ્થાનનું યોગ્ય નિદર્શન કરાવી આપ્યું છે. પડી ભાંગેલા અને ભાંગતા જતા અનેક ઉદ્યોગોની દુઃખદ કથા પણ એ આપી રહે છે... ગુજરાત એક સ્વતંત્ર પ્રાંત બનીને પોતાના ઉદ્યોગોના સ્વતંત્ર નિયંત્રણ અને સંરક્ષણનો અશ્વ વિચારશે ત્યારે એ બધું અભ્યારના કરતાં કદાચ સહજ સાધ્ય બની રહેશે અને એ વખતની ગુજરાતની સિદ્ધિમાં આવા અંશોનો ફાળો નિર્વિવાદ રહેવાનો.”

—પ્રજાબંધુ

“ગુજરાતની વિપુલ અને વિવિધ સમૃદ્ધિનો ખ્યાલ પંચમહાલનાં જંગલો અને લોખંડ મેંગેનીઝ અને કિંમતી માટી અને પથ્થરોથી માંડી બનાસ નદીની રેતીમાં ચળકતાં રૂપા અને સીસાના રજકણો સુધીના ખુણે ખુણાનો અપાયો છે. ઉદ્યોગમાં અમદાવાદના મીલ ઉદ્યોગથી માંડી પાટણનાં પટાળાં અને પછેડીઓ વણતા વણકરો, દોરાના બટન ગુંથરનારાથી માંડી હાથી દાંતના કારીગરોના ધધારોજગારો સુધીનો વિસ્તૃત ચિતાર છે. સાથે સાથે દરેક ઉદ્યોગધંધામાં રહેલી સુધારા વધારાની શક્તિશક્તિ, આવક અર્થ અને રોકાયેલી મુડીના આકાંક્ષા આપ્યા છે.

“પુસ્તક (‘વેલ્થ ઓફ ગુજરાત’) મુડીનાં જોડે સાહસિક ઉદ્યોગ-પતિઓને આ દુકામુડીમાં મહેનત સ્પૂર્ત કરી દેનારું ધ્યેય તમામને પૂરી માહિતી આપનારું માર્ગદર્શન કરાવનારું અને પ્રેરક અને તેવું છે.”

—કુલછાબ

આપનું ‘Wealth of Gujarat’ જોતા ખૂબ આનંદ થયો. જે દિશામાં તમે pioneering કાર્ય કરો છો તે ખરેખર પ્રશંસનિય છે તેથી જ નહીં પરંતુ દરેક ગુજરાતી તેમાં ગવિષ્ઠ થઈ શકે તેમ છે...”

—જયંતીલાલ હ. મહેતા, ખી. કોમ.

લેક્ચરર ઇન ઇકોનોમીક્સ એન્ડ બેન્કીંગ,

ક્લાલુવન ટેકનીક્લ ઇન્સ્ટીટ્યુટ, વડોદરા

KATHIAWAR ECONOMICS

Demy 8vo, pp. 384

Price Rs. 10

[Extract from article entitled ‘Recent Social Science Literature on India’ in The Annals of the American Academy of Political and Social Science, May 1944, p. 210.]

“.....Small Indian States seldom receive attention from Indian economists, but a healthy departure is found in A. B. Trivedi's *Kathiawar Economics*...

This work is the first of its kind, and it is hoped that the economy of several other tiny States will receive attention, if only to show that they should forfeit their right to independent existence on economic grounds."

Dr. S. CHANDRASEKHAR, M. Litt., Ph. D.
Member of the Faculty of the Department, Oriental Studies
University of Pennsylvania, Philadelphia.

"There has doubtless been a spate of books on Indian economics which deal with a number of economic problems affecting this country. In the very nature of things, these books could only devote superficial attention to economic problems relating to particular regions in this vast sub-continent. In other words, regional economic studies in a comprehensive manner have not yet been undertaken on a great scale by economists and research students in this country. Such studies are necessary and useful, if we are to have a comprehensive economic planning for India in the post-war period, inasmuch as they will enable one to get a clear idea of the economic potentialities, as well as drawbacks, of each region. We should, therefore, welcome Mr. Trivedi's attempt in this direction.

* * * *

"Mr. Trivedi has taken pains to examine the scope for further industrialisation of Kathiawar. He suggests that, looking to the huge exports of raw cotton and a limited number of textiles mills in Kathiawar, the textile industry affords a good opportunity for development especially in places like Dhrangadhra, Gondal, Veraval, and Bhavnagar. There is equally good scope for the establishment of a woolen mill in Jamnagar, as Kathiawar, is known to export substantial quantities of raw wool every year. Mr. Trivedi advocates caution regarding further development of the cement industry in Kathiawar. At the same time, he thinks that, if the market is assured, then factories can be advantageously erected at Jamnagar and Bhavnagar. The writer does not consider it difficult to establish an iron and steel industry in the Porbandar State, if only earnest attempt are made to procure coal. He also recommends the erection, at suitable centres of lime factories, oil mills, toilet soap factories, tanning industries and leather shoe factories.

"As has been observed already, Kathiawar comprises 200 and odd small States, and the princes are the most dominating

parties in this territory, each following his own policy, regardless of the view-point of his neighbour. To take one instance only, namely the railways, we find that, though the railways in this region are a little more than 1,000 miles in length, there are six different managements, each pulling in its own direction and thereby causing great hardship to the proper development of trade and industry. Another hindrance against the growth and commerce, says Mr. Trivedi, is the Viramgam Customs Cordon introduced and maintained by the Government of India, which places unnecessary checks on the movement of goods and commodities in the interior. The writer is not unaware of the place of village industries in a nation's economic life and makes a number of constructive suggestions for the proper development of innumerable village industries in Kathiawar.

"At a time when the various committees appointed by the Government of India are attempting to evolve suitable schemes for the post-war reconstruction of India, publications of the type under review will go to a long way towards guiding those engaged in the above-mentioned task. Since the suggestions have been made by a research scholar who has devoted considerable time and attention to the compilation of statistical data and other relevant details, they must be considered unbiassed and, for this reason alone, they merit attention." —*Commerce*

"The book under review fills a notable gap and is a pioneering work though confined to a part of this vast country. The book sets up a model study on regional economics with vivid descriptions and lends stimulus to others to continue investigations on this line in other parts of India.

"The author has made a detailed study of the possibilities of a better economic life in Kathiawar. He has left no stone unturned to make a comprehensive research with methodical precision regarding the material resources of the state, viz, mineral, forest, marine, agricultural and industrial. Besides these, existing conditions of agriculture, industries, and transport facilities of the state of Kathiawar have also been discussed with clear exposition. The elucidation of the rise and growth of Land and Sea Customs of the State and the baffling problems of Inter-State Tariffs, Viramgam cordon, etc. etc. are highly interesting and illuminating. The monograph is a valuable addition to none too numerous

economic literature of India and is a useful guide to the student of economics and the interested public as well." —*Industry*

"Last year reviewing some of the sectional studies of Mr. Trivedi, we wrote: 'In view of the fact that Kathiawar is still primitive in its community life and administration and that it lacks stratified information, Mr. Trivedi must be congratulated on his studies. We hope and trust the author would further pursue his investigations and give to the country a comprehensive monograph dealing with every aspect of the economic structure of a peninsula of India which gives sustenance to some 3½ million people and whose daily life and history are as colourful as their economic conditions are meagre and defective.' This opinion is printed on the fly-jacket of the book under review, and we are really glad that Mr. Trivedi fulfilled our wish to see the first authoritative monograph on the economic of the Kathiawar peninsula. We congratulate the young author on his pioneering work, which will be read with avidity both by the princes and the people of Kathiawar.

"This is a book which the Princes of Kathiawar are bound to read with trepidation. Here is the conclusion of the author: "Thus, for almost all the undesirable features of Kathiawar's economic life, the Rulers appear to be the chief defaulting parties. This is not intended as a condemnation of the policy of the States concerned, but this has been borne out by a thorough and dispassionate study of the real situation as existing within the province. A wise statesmanship and a judicious policy on the part of the Princes will, therefore, be able to solve the main economic problems confronting Kathiawar at the present juncture and then only a new Economic Order will be made possible wherein the industries, both large-scale and cottage, will exist side by side in a thriving condition. It is hoped that wiser counsels will prevail, and Kathiawar will witness within the next few years a new policy, which will rejuvenate the decadant industries, and will bring life blood to the tottering industrial structure of the Province.

"This conclusion is borne out by the reasoned arguments of the author in this very interesting monograph of some 400 pages, in which all that has been said and is known about Kathiawar economics is brought into one place. The work of Mr. Trivedi, is, as we said above, of a pioneering character, a fact which he

recognises, and there is the assurance that in his other projected work, "Wealth of Gujarat", Mr. Trivedi will be in a position to give the country another compendium of information of lasting value. We wish Mr. Trivedi success in his endeavours."

—*Commerce & Industry*

"The book contains a careful study of the present state as well as future possibilities of industrial development in Kathiawar."

—*Hindustan Times*

"This is a comprehensive survey of Kathiawar's economic organization. In the earlier chapters Prof. Trivedi outlines the natural wealth of the region and the occupational distribution of the population.

"The inter-State tariffs that are proving detrimental to the interests of the region's industry and trade and the longdrawn politics between the Central and State Governments on the subject of maritime traffic and customs revenue in the region are the subjects of two informative chapters.

"The small scale industries and the industrial scope of the region are surveyed in the concluding chapters, and a number of tables giving valuable statistical information have been incorporated at the end of the book.

—*Eastern Economist*

"The volume tackles the problem of the industrial development of Kathiawar, with special reference to its natural resources and geographical position. The need of afforestation, economic importance of the coastline of the peninsula, the problem of population and agriculture, a survey of its industries and their possibilities and scope, the political conditions, and rise and growth of inter-state tariffs—these are some only of the problems the author discusses with marked ability. The book thus provides a basis for the industrial and economic planning by the administrators as well as by the industrialists of Kathiawar."

—*Hindustan Review*

"This is a survey of the economic resources and possibilities of Kathiawar and the author has taken considerable pains to carry it out with all practicable thoroughness. He has not allowed his enthusiasm for research to be cooled by lack of important relevant statistics and has made good use of such in-

formation as was available and as he could himself collect."

—*Bombay Chronicle Weekly*

".....It is a well-known fact that many eminent and wealthy immigrants of Bombay have their ancestral home in Kathiawar and they would well have invested their capital resources in their own home lands, provided conditions of life and living were as favourable in these States as they are in British India. Mr. Trivedi's book should be an eye-opener to those in political authority in the States of Kathiawar, when it is realised that it is they and their 'tortuous' politics which are mainly responsible for the low standard of living and the meagre purchasing power of the people of their States, or the present economics of Kathiawar."

—*Bombay Co-operative Quarterly*

"Mr. Trivedi has done a great service to the economic development of India by his masterly and valuable survey of the economic condition of the Kathiawar peninsula, for it shows the lines on which useful surveys of the different regions of this vast sub-continent should be attempted. Though the survey deals with a small portion of our great county, the complicated nature of the areas has presented serious difficulties in attempting a comprehensive and reliable survey. The existence of some two hundred States with varying degrees of political and economic development, in some cases with little or no useful statistics available, has handicapped the author to a great extent. He had, therefore, to make an extensive tour of the Peninsula for gathering first-hand information and necessary data. The result is that the survey is detailed and covers all the various aspects of the economic life of Kathiawar."

—*Varthaga Oolian*

"I am commanded by H.H. the Maharaja Raj Saheb to convey to you His Highness' congratulations on your Book *Kathiawar Economics*.

"His Highness has found this your pioneer effort interesting and worthy of every encouragement. I am further to express the hope that you will continue to do such useful service to the people and the States of Kathiawar."

Yours sincerely

Sakarchand K. Sanghvi

Dhrangadhra.

"The writer is a research scholar, and, in his capacity as an investigator under the Bombay Economic and Industrial Survey Committee, he had special opportunities to gather first-hand information about the industries of Gujarat"..... "We hope the Princes and peoples of Kathiawar will pursue this literature with interest and will do all in their power to promote the agricultural and industrial development of Kathiawar."

—*Bombay Co-operative Quarterly*

"Students of Economics will welcome such regional surveys and you are to be congratulated on giving a useful lead in this matter"—S. G. Beri, Esq., M.A., B.E.S. (Class I), Professor of Economics, Sydenham College of Commerce and Economics, Bombay.

"I must admire your perseverance and thoroughness in pursuing your enquiries.... If we had a few more Scholars like you, the problems of the Country could be studied most thoroughly and quickly. Personally I attach great importance to such practical research studies which are increasingly necessary you should continue your work with or without encouragement for the reward lies in the work itself."—P. G. Shah Esq., M.A., B.Sc., J.P., Accountant General, Government of India.

"Only yesterday I finished the reading of your *Kathiawar Economics*. Please accept my hearty congratulations for such a masterly work, throwing full light on Kathiawar. Such a book was a long felt want and you have put under obligation the people of Kathiawar by publishing it. They anxiously await the publication of some such book in Gujarat."

Chhotalal M. Kamdar, B. A.

“પ્રોફેસર એ. બી. ત્રિવેદીને કાઠિયાવાડના આર્થિક જીવન વિષેનો આ ગ્રંથ (કાઠિયાવાડ ઇકોનોમીક્સ) બહુમૂલ્ય સામગ્રીથી ભરપૂર છે. ખુબ જોડમત ઉઠાવીને પ્રાપ્ત કરેલી માહિતીથી ભરેલું આ પ્રકારનું આવું બીજું કોઈ પુસ્તક અમારા જોવામાં આવ્યું નથી. ધીકતા ઉઠોગોથી સમૃદ્ધ એવા એક વખતના કાઠિયાવાડની બેહાલ બનતી જતી સ્થિતિ જોઈને જેમનું સ્થિતિ દાઝતું હોય તે પ્રત્યેક વ્યક્તિએ આ પુસ્તક ધ્યાનપૂર્વક વાંચી જવું જોઈએ. કાઠિયાવાડના રાજવીઓ, તેમના મંત્રીઓ, લોકસેવકો, પ્રજનાયકો, ઉદ્યોગપતિઓ, વેપારીઓ, હિતચિંતકોએ, આ પુસ્તક વાંચવું જોઈએ અને કાઠિયાવાડના આર્થિક જીવનને લાગેલા Galloping Consumption એટલે ઠેકડા મારતા ક્ષયરોગનું નિવારણ કરવું જોઈએ. શ્રી. ત્રિવેદીને એમના

આ અત્યંત ઉપયોગી સંશોધન કાર્ય માટે ધન્યવાદ ઘટે છે.” —જનમભૂમિ

રેતીના મોટા રણમાં મીઠી વીરડીનું સ્થાન મેળવે એવા શ્રી એ. બી. ત્રિવેદીના અગ્રણ્ય ગ્રંથ ‘કાકિયાવાડનું અર્થકારણ’ કાકિયાવાડના કોઈપણ પ્રશ્નમાં રસ લેતા સૌનું ધ્યાન ખેંચી લે છે.

સમગ્ર રીતે, કાકિયાવાડના વિકાસની ઈચ્છા સેવતા કોઈને માટે પણ આ ગ્રંથ ઘણાજ કીમતી થઈ પડે એમ છે.

એમની યોજનાઓને મૂર્તરૂપ આપવાનો વ્યવહાર માર્ગ શોધવામાં આવે અને એ માર્ગમાં જુદાં જુદાં રજવાડાંઓનો પૂરતો સહકાર સાંપડે તો કાકિયાવાડનો ઔદ્યોગિક કાર્યાપલટ કરવામાં ઝાઝી વાર નહિ લાગે.

—વંદે માતરમ્

“‘કાકિયાવાડ ઈન્કોનોમીક્સ’ અને ‘વેલ્થ ઓફ ગુજરાત’ મહાગુજરાતને ચરણે ધરીને પ્રો. એ. બી. ત્રિવેદીએ મહાગુજરાતની એક મોટી ખેટ પૂરી કરી છે.

“વિદ્યાપીઠના વિદ્યાર્થીઓને આંકડોઓની જ કરામતમાં ગુંચવતા અર્થશાસ્ત્રના પુસ્તકોમાં પ્રો. ત્રિવેદીના ગ્રંથો નવી ભાત પાડે છે. તેમની સચોટ અને સુંદર શૈલી વાંચનારનું દીલ જીતી લે છે.

“મહાગુજરાતના આર્થિક અને ઔદ્યોગિક ભાવી વિકાસની શક્યતાઓ માટે સચોટ દૃષ્ટિકોણથી સંકલીત કરેલી માહિતીઓ તેમના ગ્રંથોમાં ભરી છે અને મીઠા ઉદ્યોગથી માંડીને ખેતી સુધીના નાના મોટા બસો ઉદ્યોગોની તેમણે સમાલોચના કરી છે. એ સમાલોચના કરતા પ્રો. ત્રિવેદી આજની આર્થિક આંધીમાં નવી દૃષ્ટિ આપે છે અને તેમના એ ઉદ્યોગોને લગતા સુચનો સફળ માર્ગદર્શક જેવા છે. તેથીજ અમે ભારપૂર્વક ભલામણ કરીએ છીએ કે જેને હૈડે મહાગુજરાતનું હીત વસ્તુ હોય એવા વિદ્વાનોથી માંડીને અદના વેપારી સુધીનાને એક સરખા ઉપયોગી થઈ પડે તેવા પ્રો. ત્રિવેદીના આ ગ્રંથો ભવિષ્યની પ્રગ્નને તો એક કિંમતી દસ્તાવેજ રૂપ થઈ પડશે.

“મહાગુજરાતના આર્થિક સવાલોપર વર્ષોની મહેનત, એક ધારો અભ્યાસ અને ખૂણે ખૂણાથી માહિતીઓ એકઠી કરીને પ્રો. ત્રિવેદીના આ ગ્રંથો મહાગુજરાતને આંગણે તો સૌથી પ્રથમ પ્રકટ થાય છે અને તેથી મહાગુજરાત આજે તો પ્રો. ત્રિવેદીનું રૂણી બન્યું છે. —જય સૌરાષ્ટ્ર

“મુંબઈ યેથીલ ખાલસા કૉલેજાંતીલ પ્રાધ્યાપક ત્રિવેદીં યાંનીં કાઠેવાઢ કિંવા સૌરાષ્ટ્ર હા પ્રાદેશિક ત્રિભાગ ઘેઝન ત્યાંતીલ અર્થશાસ્ત્રીય

प्रश्नांची उपर्युक्त पुस्तकांत चर्चा केली आहे. हा त्यांचा उपक्रम निःसंशय अभिनंदनीय आहे. सौराष्ट्रातील लोकसंख्या, खनिज संपत्ति, शेती, उद्योगधंदे वगैरे गोष्टींसंबंधी उपयुक्त व उद्बोधक चर्चा या पुस्तकांत वाचकांना आढळेल.”

—ज्ञान प्रकाश

यह अर्थशास्त्र काठियावाडके लिये तो उपयोगी है ही परन्तु साथ ही यह भारतके दूसरे प्रान्तोंके लिए भी बहुत उपयोगी है।

पुस्तकमें कृषिकी नई रीतियों तथा ग्रामउद्योगोंका अच्छा विवेचन किया है जो प्रत्येक भारतीय किसान तथा ग्रामीणके लिये लाभदायक हैं। प्रो. त्रिवेदीजीका हम ऐसे अनुपम ग्रंथकी रचनाके लिये अभिवादन करते हैं और यह आशा करते हैं कि आगे भी आप इसी तरह अपने विचारों तथा प्रयोगोंको जनताके सम्मुख रखकर अर्थशास्त्रके क्षेत्रमें सर्वमान्य लोकप्रियता प्राप्त करें।

—माहेश्वरी।

THE GOLD THREAD INDUSTRY OF SURAT

“Among the minor industries that have recieved tariff advantages in India is the gold thread industry. Its principal centre of production is Surat and the appearance of a monograph on the industry of that town marks its importance. Mr. A. B. Trivedi has followed the late Professor Unwin's advice in selecting a fairly compact industry with an ancient and distinguished history..... “The various technical processes and the valuable materials used are described in detail by Mr. Trivedi who shows that factory organisation has made good progress in Surat while the number at work has declined owing to the smallness of the earnings per worker. Full tariff protection accorded for 10 years since 1931 has had no critics, since the 50% duty has provided the usual revenue though it has reduced the imports of gold thread and lamatta. The certainty of renewal, if that has not been done already, will not excite controversy but the industry has not effected the internal improvements for which guidance and demonstrations are needed. Various measures are suggested in this connection such as a research bureau to prepare designs and prevent mal-practices.

The case for a further period of protection is implicit in this monograph which has appeared in the Journal of the Bombay University."

—*Indian Finance*

"He (the author) is to be congratulated on the production of a very able hand-book on a subject on which scanty information is available."

—*Journal of the Bombay University*

Vol. IX, Part I

"...Mr. Trivedi, who has made a thorough study of the several problems connected with this industry, has accordingly put forward many practicable suggestions in the pamphlet under review, which if adopted, would improve not only its competitive power but also place this age-long industry on a more stable basis...."

—*Commerce*

"The author who worked as an investigator of the Bombay Industrial and Economic Survey Committee and is now a lecturer in a Bombay college was awarded a research grant by the University for carrying out investigations in this industry. The present booklet, which is a reprint of an article which originally appeared in the Journal of the University of Bombay, traces historically the conditions obtaining in that industry, and describes the technique of manufacture, the gilding process, embroidery and lacework, and the organisation of capital and labour. The last two pages conveniently summarize the author's conclusions and recommendations based thereon."

—*Indian Textile Journal*

"It gives a detailed and interesting account of the gold thread industry in Gujarat, and specially at Surat, which has long been the home of this craft. Though small in compass, it gives a comprehensive account of the subject it deals with, and as such it merits the serious attention of those interested in the manufacture of gold thread."

—*Hindustan Review*

"...The author has, with the research grant from the University of Bombay, carried out personal investigations, in the gold thread industry of Surat and has, in this interesting article, traced its antiquity, discussed its different technical processes and its condition, with statistics, before and after the Gold

Thread industry (Protection) Act was passed by the Government of India.

The industry has suffered through the Foreign competition, inadequate protection, and growing popular apathy. The author has made important suggestions for its reorganisation. Since the industry presents a vital artistic, industrial and economic problem of the Bombay Presidency, it should not only exist but should regain its lost ground and prosper. The government should vouchsafe to it permanent and efficient protection and should invest funds for its reorganisation on sound and progressive lines."

—*Bombay Chronicle Sunday Edition*

"This is an instructive brochure, being a reprint from the Journal of the University of Bombay, vol. IX, Part I, July 1940.

"Mr Trivedi observes that the truth of the remark of Sir M. Visvesvaraya that 'industries are a no man's child in India', is well brought home by the example of this industry. Even the size of this industry, that gave employment to people numbering once about a lakh, ought to have directed the Government to take early steps to improve conditions in this industry. But at this critical juncture no State guidance was made available to the manufacturers or the artisans to adopt the new methods, technique or appliances. The condition of the industry as a whole was very precarious by the first decade of the 20th century; it would have been practically extinct in India but for the unforeseen event that intervened in the shape of the World War."

"The rest of the pages of the brochure are devoted to a detailed survey of the actual position and working of the industry at Surat. The various finished products of the industry, the raw materials, the strength and quality of labour employed in the industry are dealt with in detail." —*Bombay Co-operative Quarterly*

"In this article the author makes a detailed survey of the gold thread industry of Surat and makes certain suggestions for improving and stabilising the same . . . The author gives many useful suggestions which may be adopted by all those engaged in the industry."

—*Varthaga Oollian*

"In the first booklet reprinted from the Journal of the University of Bombay, Mr. Trivedi deals with the possibilities

of the Gold Thread Industry of Surat which is one of the art-crafts catering to the needs of the richer classes, and the requirements of the middle and the poor classes on some propitious occasions like marriage ceremonies, if organised and developed on sound and business-like lines. A detailed investigation into the diverse aspects of the industry including the absorptive capacity of each markets, the considerations of price, quality, designs, delivery etc., on scientific basis is urged by the author."

—*Cochin Argus*

THE SILK WEAVING INDUSTRY OF SURAT

"The early history of silk weaving in Surat, its present position, the plight of the silk handloom weaver, the handicaps from which the powerlooms suffer, are some of the main points discussed in a pamphlet on "Silk Weaving Industry in Surat" by Mr. A. B. Trivedi. As such, the pamphlet is bound to prove useful to all those interested in the silk industry in India."

—*Commerce*

"The pamphlet, reprinted from the Journal of the University of Bombay, makes a broad survey of the silk weaving industry of Surat, the raw materials used, nature of the production, technique, existing conditions of handloom weaving, nature of competition, the difficulties of the industry and how these can be best remedied. The suggestions of the author in this connection are worth investigating."

—*Industry*

"His suggestions for improving the raw material and the technique of dyeing and manufacturing and under some of the other heads also would appear to be sensible and sound."

—*Indian Textile Journal*

"Mr. Trivedi's studies in Kathiawar and Gujarat Economics are of particular value to industrialists and traders. In this, he has given the results of his survey into the history, present conditions and prospects of this ancient industry in this port-town of India. Like many other ancient trades of this country Silk Industry also is beset with many difficulties, and Mr. Trivedi's recommendation for ensuring its development deserves particular attention on the part of the Government of India as also those sections of the public connected with this industry. The

fund of information which the author presents on the subject shows deep research into the question.” —*Social Welfare*

“In this booklet dealing with the silk industry of Surat, the author has given suggestions which will be found helpful for all engaged in the industry in other parts of the country.

“There are many...valuable suggestions relating to marketing and to the imposition of protective duties with a view to prevent unfair competition from outside, which we hope will be given due consideration in proper quarters. The booklet will be found to be very useful to those engaged in silk weaving industry.” —*Varthaga Oolian*

“The Surat silk has a place of its own, and it is creditable for Mr. Trivedi to have tackled this industry and *inter alia* placed before the public a bird's eye view of the existing conditions of the handloom industry. The author has shown his grasp of the subject and presented his subject well.”

—સાંજ વર્તમાન

“સુરતના રેશમ વણાટના ઉદ્યોગની પ્રાચીન કાળથી માંડીને અર્વાચીન કાળ સુધીની પરિસ્થિતિ, હિંદમાં સુરતી રેશમનું અગત્યનું સ્થાન, તેની વાર્ષિક ઉત્પન્ન વગેરે વ્યવહારમાં ઉપયોગી અને સંશોધનાત્મક માહિતી આ નાની પુસ્તિકામાં અપાઈ છે.” —*ગુજરાતી*

AGRICULTURE IN KATHIAWAR

“...Mr. Trivedi's study...reveals that, while agriculture in Kathiawar is already subject to diminishing returns, the incidence of taxation has been on the increase.

“The remedies to some of the above problems that are suggested in the booklet are worth consideration. Firstly, according to the author, the land revenue system should be reorganised in such a manner that the permanency of holding must be guaranteed.”

“Regarding the problem of indebtedness, Bhavnagar has given the lead, and the writer pleads that such a lead can very well be followed by other States. He also pleads for the reduction of land revenue charges which have been on the increase

during the last 25 years. These, together with the other reforms suggested in the booklet, should, according to Mr. Trivedi, go a long way towards ensuring the prosperity of agriculturists in Kathiawar States. Many of these, it is needless for us to add, would achieve the same purpose elsewhere too, wherever they may be warranted.” —*Commerce*

“In the booklet under notice Mr. Trivedi, who is already well known as the author of several instructive studies on the economic problems of the Kathiawar States, analyses occupational returns in relation to agriculture in Kathiawar, and then deals with the nature of the soil and the problems connected with it. Not the least useful and interesting portion of the booklet is the concluding portion where the author offers several valuable suggestions for improvement.” —*Indian Textile Journal*

“Mr. Trivedi analyses in this booklet, the agricultural problems of Kathiawar which reveal the extremely distressing situation there, a situation which has been brought about by the diminishing returns from land and the increasing incidence of taxation. Mr. Trivedi has several practical suggestions to offer to better the condition of the Kathiawar ryots which deserves the attention of the authorities concerned. He says that the land revenue system must be reorganised and that permanency of tenure must be guaranteed. This will equally apply to every other State not only to Kathiawar, and unless the Damocles’ sword—the fear of eviction—is removed over the heads of the peasants, there will be no honest work on their part to improve their holdings. Not the least important of his proposal is that the State must at least declare in unequivocal terms that within their territory no parcelling of land beyond a minimum will be tolerated. In Kerala also we are faced with the same problem and it is this fragmentation of holdings that has made our farming uneconomical.” —*Cochin Argus*

PRESENT INDUSTRIES OF KATHIAWAR

“Lack of properly co-ordinated statistical data and lukewarm, at times even apathetic, attitude of some States in Gujarat were two of the grave handicaps under which the above survey of industries in Kathiawar was accomplished by Mr.

Trivedi, that inspite of these, such should be as illuminating a study as it is redounds to the credit of the author." —*Commerce*

"Mr. Trivedi's survey of Kathiawar industries (published last year by the Guzarat Research Society) refers to the interest taken by a few princes in the industrial development of their States."

—*Indian Finance*

"The writer is a research scholar, and, in his capacity as an investigator under the Bombay Economic and Industrial Survey Committee, he had special opportunities to gather first-hand information about the industries of Gujarat.

* * * * *

"The author has surveyed the existing industries in Kathiawar and from the point of view of raw materials locally available, has discussed the possibilities of the development or extension of such industries as the textiles, cement, iron and chemical and pharmaceutical industries."

—*Bombay Co-operative Quarterly*

VILLAGE INDUSTRIES OF KATHIAWAR

"In this booklet the learned author deals with the principal cottage industries of Kathiawar suggesting the ways and means of improving them."

—*Industry*

"Within about a hundred pages, it gives an exhaustive account of the existing village industries of Kathiawar like hand-spinning and weaving, cattlebreeding and ghee manufacture, tanning, oil-pressing, basket-making, rope-making, etc., and suggests various schemes such as voluntary association, State activity, co-operative methods and State-aided village industries associations, for the promotion of these industries."

—*Sunday Standard*

In this monograph Sjt. Trivedi examines the place of village industries in the economic life of Kathiawad and surveys the position of various industries in that Province.

"He puts in a plea for the revival of handicrafts and village industries as valuable in providing a solution for many of the rural economic problems which face Kathiawad along with the rest of India.

"A feature of the monograph is the scheme Sjt. Trivedi puts forward for the establishment of State-aided village industries associations for promoting the revival and development of village industries in various states which should seek the guidance and advice of the all-India Village Industries Association in the conduct of their activities." —*Bombay Chronicle Sunday Edition*

"The need for immediate action is vividly brought home in Mr. Trivedi's rapid survey of the decline of the rural industries of the Province." —*Social Welfare*

"The brochure will be found to be of valuable help to all interested in the development of rural industries." —*Varthaga Oolian*

"This is an article which appeared in the January 1941 issue of the "Journal of the University of Bombay." Kathiawar is essentially a land of villages for while there are only 61 towns the number of villages is 4,564, the village population being very poor. In the revival of its village industries and handicrafts will be the solution of many of Kathiawar's economy problems there being a variety of village industries in that Province. Under the existing circumstances State-aided village industries associations are the only practical solution." —*Jute Journal*

INDUSTRIAL POSSIBILITIES IN KATHIAWAR

"In this little book the author describes briefly the natural resources of the country and suggests various industries which can be profitably started in utilising them." —*Industry*

"An examination of these three booklets (*Industrial Possibilities In Kathiawar, Village Industries of Kathiawar—How they can be Developed, and Agriculture in Kathiawar*) shows that they constitute a fairly comprehensive survey of the economic conditions of a part of India about which very little is as yet known, particularly in view of fact that Kathiawar is not one single administrative unit but is composed of a large number of Indian States, concerning whose activities and living conditions statistical information still remains to be completely mapped out. In view of the fact that Kathiawar is still primitive in its

community life and administration, and that it lacks stratified information, Mr. Trivedi must be congratulated on his studies.”
—Commerce & Industry

“These two pamphlets 1. *Industrial Possibilities in Kathiawar*, and 2. *Village Industries of Kathiawar—How they can be Developed* are extremely interesting, as they aim at the industrial revival of an important portion of Western India. The author’s contention, in the first brochure, is that, from the point of view of the availability of raw materials, the possibilities of large-scale industrial development in Kathiawar are considerable. In the second, his contention is that the village industries of Kathiawar need to be developed, with a view to maintaining in a prosperous state the agricultural economy of the land and economically utilising the wasteful idle time of the villagers.”

—Commerce

“In these brochures [see above] Mr. Trivedi recommends to the Kathiawar States the adoption of an active policy of encouragement of industries and pleads for the democratisation of the administration in these States.”

—Hindu

“Presentation of these two vital subjects [see above] after careful inquiry and study of the problem by a qualified person is a valuable contribution of national importance.”

—SJT. AMBALAL SARABHAI

A. NEED FOR A COORDINATED TRANSPORT SYSTEM IN KATHIAWAR

B. PRESENT INDUSTRIAL GROWTH IN KATHIAWAR WITH SPECIAL REFERENCE TO TRANSPORT FACILITIES

“To any student of economics, accordingly, the problem of transport must be of absorbing interest. Being a lecturer in the subject, it is not surprising that Mr. Trivedi should have made such an intensive study of the problem as his publications noted above clearly reveal.

“In both the publications, the author considers all the systems of transport and the part each one of these plays.....

"In regards to industrialisation, the author, while admitting that transport facilities have helped the growth of industrial establishments in Kathiawar, argues that Kathiawar has not been industrialised to the core. He supports this conclusion by pointing to the fact that the bulk of Kathiawar's exports still consists of raw materials and to the existence of but a few large-scale industries. He concludes, therefore, with the plea, which we fully endorse, that the Kathiawar States should earnestly take up the question of fully exploiting the industrial possibilities of Kathiawar." —*Commerce*

TO THE KATHIAWAR COAST

"In this booklet the learned author tries to ventilate with facts and figures the economic importance of this little peninsula." —*Industry*

"In this booklet.....Mr. Trivedi discusses the usefulness and necessity of developing the minor ports of Kathiawar which have lost their prominence as a result of various causes. He also makes a plea for improving the coastal creeks..... In view of these facts, small ports of Kathiawar deserve greater attention of the authorities concerned. All the possible steps for their upkeep and development have got to be adopted at the earliest possible opportunity so that they can play their due role in the services of the trade and industry of this Province."

—*Varthaga Oolian*

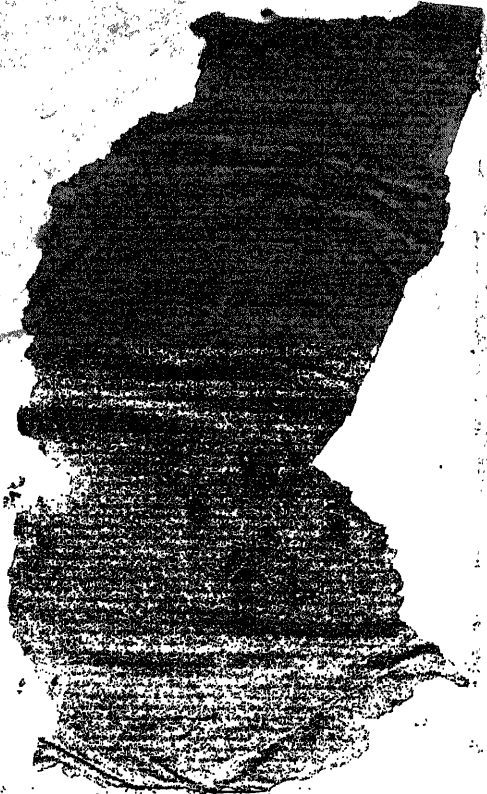
"There are several ports facing the coast line of Kathiawar—some of them beautifully developed and some otherwise. The foreign sea-borne import trade *via* these ports has since the last few years acquired very great importance. Under these circumstances, a careful exposition of the history of these places together with their respective trade value deserves a fairly good study."

—*સાંજ વત્સાન*

THE WASHERS MANUFACTURING INDUSTRY OF GUJARAT

"This is an interesting report on the investigations made by the author on the subject....The author has made a detailed study of the subject and on the basis of his findings has made certain recommendations."

—*Varthaga Oolian*



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